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BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

The Nuclear Non-Proliferation Act Of 1978 Should Be Selectively Modified

ORIGINAL

The short-term impact of the Nuclear Non-Proliferation Act of 1978 in establishing an effective international framework for controlling the proliferation of nuclear explosive capabilities has been limited. However, it represents a long-term agenda requiring ambitious international initiatives which often take a long time to conclude. Although GAO does not believe that major changes should be made, it believes the Act should be selectively modified to

- conform with political, technical, and economic realities,
- obtain wider international acceptance,
- preserve the framework for curbing the inherent risks of weapons proliferation associated with peaceful nuclear cooperation, and
- improve executive branch implementation.

This report fulfills GAO's reporting mandate contained in the 1978 Act.

UNITED STATES GENERAL ACCOUNTING OFFICE

OCG-81-2
MAY 21, 1981

245

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-202299

To the President of the Senate and the
Speaker of the House of Representatives

This report discusses our assessment of the Nuclear Non-Proliferation Act of 1978. It includes our suggestions for revising some aspects of the Act and contains recommendations to the involved agencies for improving their implementation of the law.

Our review was made pursuant to section 602(e) of the Nuclear Non-Proliferation Act of 1978 which requires that the Comptroller General complete a study and report to the Congress, 3 years after enactment, on the implementation and impact of the Act. Moreover, the Act requires that this report contain such recommendations as the Comptroller General deems necessary to support the law's policies, purposes, and objectives.

We are sending copies of the report to the Director, Office of Management and Budget; the Secretaries of State and Energy; the Director, Arms Control and Disarmament Agency; the Chairman of the Nuclear Regulatory Commission; and the Administrator of the Agency for International Development.

Acting Comptroller General
of the United States

A

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

THE NUCLEAR NON-PROLIFERATION ACT OF 1978 SHOULD BE SELECTIVELY MODIFIED

DIGEST

The Nuclear Non-Proliferation Act of 1978 represents an important step by the United States to establish a framework of controls and incentives that, if adopted internationally, could reduce the threat of weapons proliferation and promote the peaceful uses of nuclear energy. Along with executive branch non-proliferation policies, the Act's implementation has generated considerable negative reaction from foreign nuclear trading nations and the U.S. nuclear industry.

GAO believes the results of the Act have been limited to date, but, to demonstrate its leadership in addressing the proliferation problem, the United States should retain the law's goals and objectives. GAO also believes that amendments and other changes are needed to help the Act achieve wider acceptance, enhance international cooperation, and improve executive branch implementation.

The short-term impact of the Act's individual titles in achieving their objectives has been limited because the law has not been fully implemented or widely accepted abroad.

TITLE I

Title I states that, as a matter of national policy, the United States should take such actions and measures as are necessary to assure the availability of an adequate supply of nuclear fuel to those nations or groups of nations which adhere to effective non-proliferation policies. (See p. 24.)

The nuclear fuel supply assurances are intended to function as a two-pronged incentive to (1) dissuade other nations from prematurely acquiring indigenous enrichment and/or reprocessing capabilities and (2) make the upgraded safeguards and nonproliferation commitments called for in other titles more acceptable.

Tear Sheet. Upon removal, the report cover date should be noted hereon.

GAO found that the assurances either are not much of an incentive to other nations or have not materialized. (See pp. 24 and 36.)

Although the Department of Energy is constructing additional enrichment capacity, it is not apparent that such capacity is now needed to meet foreign demand, or to further U.S. non-proliferation objectives since a worldwide surplus is expected in the mid-1980s. Foreign concerns over U.S. reliability will not be solved by building additional uranium enrichment capacity. The Department believes the additional capacity is justified on an economic basis. However, still at issue are (1) whether the Department's projected cost savings in 1990 and beyond justify the large current investment in a period of intense budget scrutiny and fiscal restraint and (2) whether alternative actions that would permit a delay in this investment were fully and objectively considered. (See pp. 24 to 30.)

With regard to the required international initiatives, such as the International Nuclear Fuel Authority, GAO found that limited progress has been made in this area. Although the International Atomic Energy Agency's Committee on Assurance of Supply is anticipated to address multinational nuclear fuel supply assurances, it seems that the United States is considered a "lukewarm" participant in this endeavor. (See pp. 36 and 37.)

The Act also states that the executive branch should explore the establishment of international spent fuel repositories. While some discussions have taken place concerning an international facility, much more complicated and time consuming negotiations must take place before even the concept is approved--much less construction of a facility started. (See p. 37.)

A closely related issue concerns proposed international controls over plutonium. To reduce the proliferation risks created by scattered plutonium stockpiles, an international control system over excess plutonium is needed. Such a system does not exist. GAO believes the United States has been perceived as placing less than its full weight behind the proposed international plutonium management and storage regime. (See p. 37.)

To provide certain nations with a credible alternative to reprocessing, the United States offered to accept limited quantities of foreign spent fuel for storage. The Act provides a mechanism to carry out this offer. However, the lack of follow-through over the last three years has demonstrated that the offer does not provide other nations a credible alternative. GAO believes the offer to accept foreign spent fuel should either be implemented or withdrawn. (See p. 34.)

TITLE II

Title II calls for U.S. contributions of financial, technical, informational, and other resources to assist the International Atomic Energy Agency in effectively implementing safeguards. GAO found that the intensified U.S. efforts to upgrade the Agency's safeguards have had some positive results, but have not yet had as significant an impact on safeguards in the field as had been hoped. (See p. 40.)

Title II also calls on the United States to seek to negotiate international principles and procedures to be followed in the event of diversion, theft, loss, or sabotage of nuclear materials, equipment, or technology. In addition, the Act states that U.S. policy is to strongly encourage adherence to the Non-Proliferation Treaty. GAO found that some progress has been made in the physical protection of nuclear material and increased Treaty adherence, but there seems to be little interest abroad in developing specific international sanctions. (See p. 49.)

In GAO's opinion, Title II represents a strong commitment to the international non-proliferation effort and no change to it seems necessary. However, international nuclear safeguards need improvement. (See p. 51.)

TITLE III

Title III establishes new regulatory controls over U.S. nuclear exports, and mandates new complex procedures in the way commercial nuclear export decisions are reviewed and approved by Federal agencies, with provisions for oversight by the President and the Congress. (See p. 54.) The Title requires that the executive branch agencies determine that proposed exports will not be inimical to the common defense and security of the United States, and that the Nuclear Regulatory Commission must find that other specific statutory conditions and criteria are met before it can issue export licenses. (See app. VI.)

Title III also directs the executive branch and the Nuclear Regulatory Commission to adopt regulatory procedures to facilitate the timely processing of requests for export licenses. GAO found the following.

--About 85 percent of the licenses issued were considered minor exports and were issued in a timely manner.

--The vast majority of major exports (e.g., nuclear reactors and highly enriched uranium) were not issued in a timely manner, although the timeframes have improved.

--Most of the reasons that statutory time limits were not met related to the failure of recipients to comply with U.S. export conditions, certain nation-specific problems, or unresolved questions by one or more Government agencies about whether the proposed export meets U.S. export conditions.

--Greater use of streamlined licensing procedures, in recent months, have expedited the licensing process.

--Highly enriched research reactor fuel, initial core loads of low enriched power reactor fuel, and reactor exports continue to present Government agencies the greatest difficulties. (See p. 55.)

Although there is greater use of the streamlined procedures, more can and should be done to make Government non-proliferation reviews of export license applications more timely and predictable. (See p. 56.)

The executive branch has not developed a long-term policy for exercising U.S. approval rights over subsequent arrangements involving reprocessing and plutonium that balances major nuclear trading partners' desires for supply assurances with non-proliferation assurances required by Title III. (See pp. 68 to 74.)

GAO believes that until the executive branch develops a long-term policy for carrying out U.S. approval rights over foreign reprocessing and plutonium use, the United States should continue its case-by-case review of subsequent arrangements involving reprocessing and plutonium use and maintain Title III's strict standards governing approvals. Much of the uncertainty presently associated with such approvals could be removed if the executive branch acted on foreign requests without U.S. trading partners having to demonstrate an imminent physical need. (See p. 73.)

In a prior report, GAO discussed significant problems in the Department of Energy's regulatory controls over nuclear technology exports and other unclassified foreign nuclear activities of U.S. firms and individuals. In this report, GAO presents specific actions the Congress should consider to make these controls more efficient and more effective. (See p. 74.)

The role of the Nuclear Regulatory Commission in the nuclear export licensing process has been a matter of considerable debate since the licensing regulatory functions were transferred to it in 1975. Initially the debate centered around the appropriateness of a regulatory agency, independent of presidential control, having a highly visible decisionmaking role in what essentially amounts to foreign policy and national security judgments. Concerns were also expressed that the Commission's addition to the export licensing process contributed to foreign customer perceptions that the United States was becoming an unreliable trading partner. In the aftermath of the Three Mile Island accident, the focus of the debate shifted to whether the Commission's involvement in export licensing detracted from its primary mission of ensuring the safety of nuclear power in the United States.

GAO weighed arguments for and against the retention of this role. Specifically, the Nuclear Regulatory Commission, before issuing an export license, provides an independent review of an executive branch judgment that an export will not be detrimental to U.S. security. If the Commission decides not to issue a license, this could trigger direct involvement of the President and the Congress. GAO did not find sufficient justification to recommend removal of the Commission from the export licensing process given past indications of congressional intent and the Commission's recent performance.

GAO recognizes that this represents a legitimate national policy issue that the Congress may wish to reexamine. Therefore, the report discusses some alternatives. (See pp. 77 to 86.)

TITLE IV

Title IV expands U.S. criteria for future agreements for peaceful nuclear cooperation and directs the President to attempt to change existing agreements to comply with the new criteria. Although the executive branch made an extensive attempt to renegotiate existing agreements and focused on nations likely to agree to the new conditions, much of the task has not been completed. There has been a general foreign reluctance to renegotiate and this effort has apparently contributed to strains in U.S. relations with some nuclear partners. (See p. 90.)

GAO believes that the United States should continue to explore the possibility of renegotiating existing agreements, when appropriate, and to require that agreements with new partners meet Title IV's criteria. However, the renegotiation efforts should be conducted in a manner sensitive to the attitudes and needs of cooperating partners, and the United States can continue to honor existing agreements. Moreover, the requirement that the President annually decide whether to extend the exemption allowing nuclear trade to continue with European allies may be an irritant that serves no useful purpose. (See pp. 102 and 103.)

Title IV also directs the President to seek adoption of specified common nuclear export policies by all nations. Progress in promoting these policies has been limited, and none have been fully adopted by the world community.

Nevertheless, GAO believes the United States should continue to seek acceptance of upgraded common nuclear export policies. (See p. 104.)

Title IV requires an annual presidential review of the Act's agreement criteria and proposed common export policies to determine whether any should be applied as additional U.S. export licensing criteria. It seems questionable whether this provision is needed. This provision does not add to the President's power and may contribute to foreign concerns that U.S. nuclear export policies may become more stringent at any time. (See p. 102.)

TITLE V

Title V calls on the United States to assist developing nations, especially Non-Proliferation Treaty parties, in identifying and developing non-nuclear energy alternatives with emphasis on solar and other renewable energy sources. (See p. 105.)

No funds have been specifically appropriated or allocated for Title V programs, and it has not been used as justification for any ongoing or planned programs. In GAO's view the need for retaining Title V is dubious given that existing programs already provide such assistance. (See p. 105.)

IMPORTANT EVENTS SINCE THE ACT'S ENACTMENT

Since the Act's enactment in 1978 (1) no additional nations have acknowledged exploding a nuclear device; (2) 12 nations (including Egypt, Turkey, and Indonesia) have ratified the Non-Proliferation Treaty, raising to 112 the number of non-nuclear weapon nations that have pledged not to manufacture or acquire nuclear explosive devices; (3) Spain has moved toward placing all its nuclear activities under international safeguards; and (4) the predicted foreign drive to acquire enrichment and reprocessing capabilities has abated somewhat. However, whether, and to what degree, such positive events were influenced by U.S. policy and law is difficult to assess.

On the other hand, (1) some nations appear to be seeking a nuclear explosive capability (most notably Pakistan); (2) several non-nuclear weapon nations with whom the United States has civil nuclear agreements for cooperation, including India and South Africa, have not signed the Non-Proliferation Treaty or agreed to accept international safeguards on all their nuclear activities; and (3) other nations have made major export sales of sensitive nuclear technology and equipment despite U.S. objections. Whether, and to what degree, such negative events would have been different if the U.S. strategy and its implementation had been otherwise is also difficult to assess. (See p. 132.)

ADVERSE FOREIGN REACTION AND IMPACT ON U.S. INDUSTRY

International cooperation is the key to the non-proliferation effort, but, with few exceptions, major nations have criticized the U.S. non-proliferation strategy. In developing this strategy, U.S. policymakers generally anticipated some of the concerns that other nations might have, but the extent and the tenacity of the overall negative foreign reaction was not anticipated. The factors influencing foreign reactions to the U.S. strategy vary widely and include energy, security, political, technical, and economic issues. (See p. 119.)

Initial reactions may not indicate the Act's eventual impact abroad because international initiatives often require much longer periods before completion and acceptance. Nevertheless, it may become increasingly difficult for the United States to overcome a continuing resistance to the U.S. non-proliferation policies. (See p. 111.)

The impact of the Act, per se, on the competitiveness of U.S. nuclear exports could not be specifically determined. This is not to say that the longer-term U.S. non-proliferation strategy has had no impact on nuclear exports. (See p. 120.)

U.S. Government officials, industry representatives, and foreign buyers have indicated that the U.S. non-proliferation strategy has had an effect in some foreign decisions to purchase from a non-U.S. company. But whether the Act, executive branch policies, financial considerations, type of reactor or equipment, or some other factor was the principal reason is difficult to determine. In GAO's opinion, U.S. companies are at some disadvantage because importers perceive that implementation of certain aspects of the Act may adversely affect them. (See pp. 120 and 130.)

LONG-TERM PROSPECTS

Despite the Act's limited impact to date, GAO does not believe that major revisions are warranted at this time for the following reasons.

First, the Act has only been in existence for 3 years and, since many international cooperative initiatives are required, it may be too soon to make a meaningful and objective assessment of its potential long-term impact. While international cooperation is the key to limiting proliferation, negotiating and consummating complex international cooperative agreements are arduous and time-consuming.

Second, although it is questionable whether one nation can single-handedly solve nonproliferation issues, the United States, especially through the Act, has heightened worldwide awareness to the dangers of proliferation. It represents an attempt to lay the foundation for an international framework of proliferation controls and cooperation. Although U.S. technological leadership may be challenged, the United States can still be an effective leader in working with other nations and through international organizations to limit the spread of nuclear weapons.

Third, the Act establishes a framework to control the potential links between civilian nuclear energy activities and nuclear weapons development. No such framework alone can provide an absolute guarantee of non-proliferation because civilian nuclear energy is but one of several routes to acquiring nuclear weapons. The technology and experience gained by many nations in conducting civilian nuclear energy programs have significantly lowered the technical barriers to weapons proliferation, so that the impact of any action by the United States, other nations, or groups of nations, can only be measured in terms of incremental not absolute assurances. Nevertheless, there remains a need to secure incremental assurances that peaceful nuclear material will not be used to develop nuclear explosive capabilities. Although the control arrangements in the Act have to date not had an apparent impact on the most prominent cases of proliferation risks, they may become increasingly important as more nations develop civilian nuclear energy programs and thereby increase the potential for nuclear weapons development. (See pp. 133 and 134.)

* * * * *

The remainder of this digest lists GAO's specific recommendations to the agencies and matters for congressional consideration. Page references to discussions in the text are provided. The text of GAO's draft bill amending the Act is contained in appendix VIII.

RECOMMENDATIONS TO THE SECRETARY OF STATE

The Secretary of State should

--in conjunction with the Secretary of Energy, vigorously pursue solutions to nuclear fuel supply assurances, international spent fuel management, and international plutonium management and storage. Active participation and support for the International Atomic Energy Agency committees on these matters would be an important part of that commitment. (See p. 38.)

--meet with other world leaders and International Atomic Energy Agency officials to address the problems impeding the effective application of international safeguards and to develop a multinational plan to overcome these problems. Renewed consideration should be given to how international safeguards should be financed, staffed, and provided with the necessary technical support. (See p. 52.)

--in consultation with the Secretary of Energy, the Director of the Arms Control and Disarmament Agency, and the Chairman of the Nuclear Regulatory Commission, review the direction and scope of the U.S. intensified efforts to improve international safeguards. (See p. 52.)

--improve the predictability and timeliness of the export licensing process for highly enriched uranium by (1) telling foreign governments, after appropriate consultations, which reactors merit continued U.S. supplies pending commercial availability of more proliferation-resistant fuels and (2) expediting the executive branch processing of export requests for presidential review. (See p. 87.)

RECOMMENDATIONS TO THE SECRETARY OF ENERGY

The Secretary of Energy, in conjunction with the Secretary of State, the Director of the Arms Control and Disarmament Agency, and the Chairman of the Nuclear Regulatory Commission, should

--assess the merits of continuing the U.S. offer to accept limited quantities of foreign spent fuel into the United States. (See p. 38.)

--revise executive branch export licensing procedures to allow generic recipient government assurances for repetitive exports. (See p. 88.)

--revise the policy to allow the executive branch to consider and act on foreign reprocessing requests without requiring the demonstration of physical need. (See p. 88.)

RECOMMENDATION TO THE NUCLEAR REGULATORY COMMISSION

Unless the Commission determines that it would be detrimental to U.S. national security interests, the Nuclear Regulatory Commission should resume decisionmaking proceedings on whether commercial reprocessing and the use of plutonium-bearing fuels should be permitted on a widescale basis in the United States from an environmental, health, safety, and safeguards standpoint. (See p. 136.)

RECOMMENDATIONS TO THE CONGRESS

To help improve the export licensing process, the Congress should amend the law to

--revise the licensing delay notification requirements to require the executive branch and the Nuclear Regulatory Commission to better account for licensing delays and inaction. (See p. 88.)

--state that it is U.S. policy to provide expedited review procedures for exports under new or renegotiated agreements for cooperation. (See p. 88.)

--exempt exports from complying with licensing criteria that do not conform with requirements of a new or renegotiated agreement for cooperation. (See p. 88.)

--transfer the Department of Energy's authority to approve all non-military Government exports of nuclear materials to the Nuclear Regulatory Commission. (See p. 88.)

--require the Nuclear Regulatory Commission to refer to the President for decision those export license applications which the Commission has had a favorable executive branch recommendation under review for at least 120 days, if the applicant requests such a referral. (See p. 88.)

To further help improve regulation of foreign commercial nuclear activities of U.S. firms and individuals, the Congress should amend the Act to require the Department of Energy to

--limit general authorizations of significant transfers of nuclear technology to those non-nuclear weapon nations that adhere to full-scope safeguards. (See p. 88.)

--provide for the withdrawal of the Department's general authorizations in the event the President terminates other nuclear exports. (See p. 89.)

--allow the Secretary of Energy to delegate approval authority for granting U.S. firms and individuals authorizations for certain commercial nuclear activities abroad. (See p. 89.)

--to provide a better public accounting of authorizations granted. (See p. 89.)

The Congress should also

- --when reviewing the Department of Energy's budget request for uncommitted increments of enrichment capacity, determine whether the Department has adequately demonstrated that it fully and objectively considered (1) the option of postponing the current centrifuge construction program and (2) the feasibility of introducing the potentially more efficient and cost-effective advanced enrichment technologies. (See p. 39.)
- --clarify to what extent the effectiveness of international safeguards should be considered by the Nuclear Regulatory Commission in export licensing. (See p. 89.)
- --eliminate the need for an annual extension of the exemption to certain export licensing criteria provided to European allies. (See p. 104.)
- --eliminate the annual presidential review of the agreement criteria and proposed common export policies to determine whether any should be applied as export licensing criteria. (See p. 104.)
- --delete Title V. (See p. 110.)

AGENCY COMMENTS

The Departments of State and Energy, the Arms Control and Disarmament Agency, the Agency for International Development, the Nuclear Regulatory Commission, and the Office of Management and Budget were given the opportunity to comment on the draft of this report. However, because the current administration has not yet announced its non-proliferation policies, most of the comments were of a general nature and did not address the policy implications of GAO's recommendations. (See pp. 136-137.)

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ABBREVIATIONS

ACDA	Arms Control and Disarmament Agency
AID	Agency for International Development
AIS	Advance Isotope Separation
DOE	Department of Energy
EURATOM	European Atomic Energy Community
GAO	General Accounting Office
IAEA	International Atomic Energy Agency
INFA	International Nuclear Fuel Authority
INFCE	International Nuclear Fuel Cycle Evaluation
LWR	Light Water Reactor
NNPA	Nuclear Non-Proliferation Act
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NRC	Nuclear Regulatory Commission
OMB	Office of Management and Budget
POTAS	Program of Technical Assistance to IAEA Safeguards
SALT	Strategic Arms Limitation Talks
SWU	Separative Work Unit

CHAPTER 1

INTRODUCTION

The Nuclear Non-Proliferation Act of 1978 (NNPA) 1/, dated March 10, 1978, is one of the most important and comprehensive pieces of nuclear legislation enacted since the Atomic Energy Act of 1954. It aims to reduce the risks associated with the further spread or proliferation of nuclear weapons capabilities and to enhance the ability of the United States to be a major supplier of nuclear exports for peaceful purposes.

WHAT IS MEANT BY PROLIFERATION?

Until recently, the term "proliferation" generally referred to the manufacture or acquisition of nuclear weapons or other nuclear explosive devices. Because there are many stages in acquiring nuclear weapons, the capability to produce nuclear weapons, has become an increasing concern of the United States. Consequently, this report defines proliferation as the spread of nuclear weapons and the capability to make them. Thus far, six nations have acknowledged exploding nuclear devices--the United States, the United Kingdom, France, the Soviet Union, the People's Republic of China, and India. In April 1977, the Energy Research and Development Administration (now part of the Department of Energy) estimated that at least 30 nations appeared technically capable of detonating a nuclear device within 10 years of a decision to do so.

Proliferation can be vertical or horizontal. Vertical proliferation is increases in the number, types, and delivery systems of nuclear weapons. The Strategic Arms Limitation Talks (SALT) are attempting to address this issue. Horizontal proliferation is the spread of nuclear weapons to nations that previously did not have them. The NNPA attempts to prevent horizontal proliferation by

--reducing the incentives for nations to acquire independent nuclear fuel cycle capabilities that could potentially be used for weapons development, and

--restricting or controlling the further spread of nuclear material, equipment, and technology that could potentially be used for weapons development.

1/Public Law 95-242, 92 Stat. 120 (1978), to be codified at 22 U.S.C. 3201 et seq. and 42 U.S.C. 2011 et seq.

WHY ARE NON-PROLIFERATION MEASURES IMPORTANT?

Non-proliferation measures are important because there is fear that the spread of nuclear weapons, and the capability to produce them, presents a grave and mounting threat to global stability and U.S. national security.

Intense rivalries exist among many of the smaller nations which appear interested in nuclear weapons. Internal events in such nations could assume great international significance if nuclear weapons were involved. Proliferation would immediately threaten the traditional enemies of new nuclear weapon nations and complicate attempts to reduce tensions between the major powers. In many of the situations where traditional rivals could become armed with nuclear weapons, the United States and the Soviet Union might find themselves lined up on opposite sides of the confrontation.

There has been increasing concern in the United States about weapons proliferation because of the development and deployment of nuclear fuel cycles in many nations and the political instability in some parts of the world. More nations are acquiring access to sensitive nuclear materials and facilities. Several nations are operating, constructing, or planning uranium enrichment and/or reprocessing facilities which can be used to produce weapons-usable material. Nations that acquire nuclear weapons can create an incentive for their regional or status rivals to follow suit--and these, in turn, may stimulate still others to pursue a nuclear weapons program.

The development of a nuclear weapons capability by more nations could mean a more unstable and dangerous world with greatly reduced security for the people of the United States and of all nations. The United States is committed to an active program to prevent the spread of nuclear weapons. President Carter, at the United Nations in 1977, called this task "one of the greatest challenges that we face in the next quarter of a century."

THE NUCLEAR NON-PROLIFERATION ACT OF 1978

After overwhelming votes by the 95th Congress (411 to 0 in the House of Representatives and 88 to 3 in the Senate) the President, on March 10, 1978, signed the NNPA into law. It began in 1975 as a modest proposal to reorganize certain export functions of the Government. The proposal evolved into a major congressional statement of U.S. nuclear non-proliferation policy and statutory directives that provided a broad agenda for executive branch actions to reduce the risks of peaceful uses of nuclear energy contributing to the proliferation of nuclear weapons.

The overall objective of the NNPA is to provide efficient and effective control over the proliferation of nuclear explosive capability. The 95th Congress found and declared in Section 2 of the NNPA that:

> "...the proliferation of nuclear explosive devices or of the direct capability to manufacture or otherwise acquire such devices poses a grave threat to the security interests of the United States and to continued international progress toward world peace and development. Recent events emphasize the urgency of this threat and the imperative need to increase the effectiveness of international safeguards and controls on peaceful nuclear activities to prevent proliferation." (Underscoring ours)

The NNPA contains five major titles. These titles provide for the executive branch to take actions to

--assure adequate nuclear fuel supplies to nations adhering to effective non-proliferation policies (Title I),

--strengthen the international safeguards system (Title II),

--implement new criteria and procedures to govern U.S. exports of nuclear material, equipment, and technology (Title III),

--upgrade the terms and conditions of U.S. nuclear cooperation with other nations in the peaceful uses of nuclear energy and seek commitments from all nations to adopt certain nuclear export policies (Title IV), and

--assist developing nations to develop non-nuclear energy sources (Title V).

Chapters 3 - 7 contain the results of our evaluation of the implementation and impact of Titles I - V. Chapter 2 provides an overview and perspective on the potential link between a commercial nuclear power program and the development of nuclear weapons and explains the objectives and evolution of U.S. non-proliferation policy. Chapter 8 summarizes foreign reaction to U.S. non-proliferation policies. Chapter 9 discusses the impact of the NNPA on the competitiveness of U.S. nuclear exports. Chapter 10 summarizes our overall assessment of the implementation and impact of the NNPA. A complete text of the law is included as Appendix I. The text of our draft bill amending the NNPA is contained in Appendix VIII.

OBJECTIVES, SCOPE, AND METHODOLOGY

Section 602(e) of the NNPA directs the Comptroller General to complete a study, and report to the Congress three years after enactment, on the implementation and impact of this Act on the nuclear non-proliferation policies, purposes, and objectives as set forth in this Act. Moreover, the Act requires that this report contain such recommendations as the Comptroller General deems necessary to support the law's policies, purposes, and objectives.

We have performed evaluations on the following facets of the NNPA:

--U.S. efforts to be a reliable supplier of nuclear fuel,

--uranium supply and demand and its relationship to non-proliferation policies,

--U.S. initiatives to encourage nations to ratify the Treaty on the Non-Proliferation of Nuclear Weapons,

--U.S. efforts to strengthen international safeguards,

--spent fuel reprocessing and its relationship to non-proliferation,

--statutory criteria and procedures governing U.S. nuclear exports,

--U.S. procedures for making nuclear export decisions,

--progress in negotiating international agreements for cooperation,

--U.S. non-nuclear energy assistance to developing nations,

--factors influencing foreign acceptance of U.S. non-proliferation policy, and

--the impact of the NNPA on the competitiveness of U.S. exports.

These studies provide the foundation for this report. As we completed segments of our work, reports were issued to the Congress. (See appendix II for a list of relevant GAO reports.) We gathered documents and other information from various sources including the U.S. Government, national laboratories, U.S. enrichment and reprocessing facilities, private U.S. industry, international conferences, international organizations, foreign nuclear officials, and a panel of consultants.

U.S. Government sources

Information for this report was gathered from records and interviews with Federal officials responsible for implementing the NNPA at the Departments of State, Commerce, and Energy (DOE); the Arms Control and Disarmament Agency (ACDA); the Nuclear Regulatory Commission (NRC); the Agency for International Development (AID); the Office of Management and Budget (OMB); the Export-Import Bank of the United States; and the Peace Corps.

To get some insight into the factors influencing foreign perceptions of U.S. non-proliferation policies, we also sent telegrams to the U.S. embassies in 12 nations. We did this on two occasions--February 1979 and August 1980--to help determine how foreign perceptions may have changed over a one and one-half-year period.

The agencies involved were given the opportunity to comment on the draft of this report. However, because the current administration had not yet announced its non-proliferation policies, most of the comments we received were of a general nature and did not address the policy implications of our recommendations. (See ch. 10.)

National laboratories

U.S. national laboratories are Government-owned, contractor-operated facilities which conduct extensive research and development. To gain insight into the state-of-the-art of safeguards technology and to learn about the role of the laboratories in providing training on physical security and safeguards to foreigners, we visited and conducted detailed reviews at the Brookhaven, Battelle Pacific Northwest, Sandia, and Los Alamos National Laboratories (located in Upton, New

York; Richland, Washington; Albuquerque, New Mexico; and Los Alamos, New Mexico, respectively).

U.S. enrichment and reprocessing facilities

As part of our effort to determine whether U.S. enrichment capacity was adequate to meet foreign demand, we conducted a detailed review at the DOE Gaseous Diffusion Plant and the Gas Centrifuge Development and Demonstration Facility in Oak Ridge, Tennessee. We also visited Allied General's Nuclear Fuel Plant in Barnwell, South Carolina to learn about the safeguards accountability programs and to observe tests of their nuclear material accounting system. We performed audit work at the two DOE operated reprocessing facilities at Savannah River, South Carolina and Idaho Falls, Idaho.

Private U.S. industry

We met with officials of the Westinghouse Corporation and General Electric Company, two U.S. reactor vendors who have successfully competed abroad. Two other reactor vendors also contributed information.

Westinghouse was a major source of information and gave us access to selected information at the corporate headquarters in Pittsburgh and European headquarters in Brussels; we reviewed, in detail, documents relating to its effort to obtain nuclear plant orders in Brazil, Iran, Romania, South Africa, and Spain. The reactor vendors gave us information about the economic impact of a nuclear reactor order.

We also met with major U.S. architect-engineering firms involved in nuclear projects abroad. Additionally, we met with several U.S. manufacturers that have exported nuclear components or nuclear fuels. Twenty-four companies were involved in our assessment of the impact of the NNPA on the U.S. nuclear industry. (See app. IV.) We were also assisted by two nuclear industry trade associations; the Atomic Industrial Forum, and the American Nuclear Energy Council.

International conferences

We attended conferences in the United States and around the world to keep abreast of important nuclear non-proliferation issues. The conferences gave us the opportunity to discuss relevant issues with a variety of knowledgeable persons.

The following conferences were attended.

--International Conference on the Nuclear Fuel Cycle, London, 1978

--International Symposium on Nuclear Materials Safeguards, Vienna, 1978

--World Nuclear Fuel Market International Conference, London, 1978, and Arlington, Virginia, 1979

--Atomic Industrial Forum Annual Conference, New York, 1978, and Washington, D.C., 1980

--American Nuclear Society International Conference on Non-Proliferation and Safeguards, Mexico City, 1980

--Institute of Nuclear Materials Management, Cincinnati, Ohio, 1978; Albuquerque, New Mexico, 1979; and Palm Beach, Florida, 1980

We also attended the Non-Proliferation Treaty Review Conference in Geneva, Switzerland in August 1980 to acquire first-hand awareness of the attitudes and positions of the 115 nations party to the treaty. The treaty is described on page 18.

International organizations

Integral aspect of our reviews were several visits and discussions with officials of international organizations. Foremost among these organizations was the International Atomic Energy Agency (IAEA) in Vienna, Austria. We met with IAEA officials in 1978, 1979, and 1980. We discussed international safeguards, U.S. and other nations' contributions to the IAEA safeguards efforts, and IAEA inspections of nuclear facilities. We also met with the U.S. Mission to the IAEA and the DOE coordination office for U.S. technical assistance for safeguards to discuss related matters.

Additionally, we met with officials of the European Atomic Energy Supply Agency (EURATOM) 1/; two European enrichment consortia; and the Nuclear Energy Agency of the Organization of Economic and Cooperative Development.

Foreign nations visited

We visited 12 nations during our review; Austria, Belgium, Canada, France, Japan, South Korea, the Netherlands, Peru, Philippines, Spain, the United Kingdom, and West Germany.

1/EURATOM--Belgium, Denmark, France, West Germany, Ireland, Italy, Luxembourg, the Netherlands, and the United Kingdom.

These nations are involved in nuclear cooperation with the United States and are representative of worldwide reaction to U.S. non-proliferation policies. In most nations, we interviewed government, industry, and U.S. embassy officials about their views on the implementation and impact of U.S. non-proliferation laws and policies in each nation. Our industrial contacts included representatives from utilities, nuclear research centers, fuel fabricators, reprocessors, manufacturers, enrichers, and nuclear trade associations.

In Japan, we visited a small demonstration reprocessing plant (Tokai Mura) which is conducting advanced international safeguards development experiments.

Consultants

To help ensure identification and consideration of all relevant issues, a number of consultants assisted us. (See app. III.) The consultants were selected for their expertise on nuclear non-proliferation matters, their diverse backgrounds and opinions, and their ability to participate on the dates of scheduled meetings. They represent a cross section of individuals who were formerly responsible for formulating and carrying out U.S. non-proliferation policies and/or who currently represent the U.S. nuclear industry, utilities, international consulting firms, and a public interest group. The first of two meetings held with the consultants was on December 9, 1978, to discuss the scope and direction of our efforts. In general, the consultants agreed with our proposed review areas and the approach to this report. We again met with the consultants on November 1, 1980, to discuss preliminary findings and to obtain their views on the implementation and impact of the NNPA and their recommendations, if any, for changes in the law.

Also, the consultants and other prominent individuals knowledgeable about nuclear non-proliferation were given the opportunity to review a draft of this report and their comments, which are summarized in Appendix IX, have been considered in this report. However, we want to emphasize that we are responsible for the conclusions and recommendations contained in the report. The fact that they worked with us to assure the accuracy and balance of the report should not necessarily be interpreted to mean that the individuals involved endorse our conclusions and/or recommendations.

Reports reviewed

In addition to speeches, Government cables, congressional hearing records, and legislative histories, the following reports are samples of the variety of sources we researched.

- --Presidential Report to the Congress, as required in Section 601 on the NNPA, 1979, 1980, and 1981
- --International Nuclear Fuel Cycle Evaluation reports
- --1975 Nuclear Non-Proliferation Treaty Review Conference records
- --1978 U.N. Special Session on Disarmament reports
- --Arms Control and Disarmament Agency Documents on Disarmament 1945-1977
- --Non-proliferation Alternative Systems Assessment Program reports
- --Congressional Research Service reports
- --Office of Technology Assessment Report on Nuclear Proliferation and Safeguards
- --Ford Foundation sponsored reports: "Nuclear Power: Issues and Choices", and "Energy: The Next Years"
- --Previous GAO reports on related issues

Limitations

In conducting our review of the NNPA, we were confronted by several limitations. We believe, however, these limitations do not significantly detract from our evaluation.

- --Due to perceived sensitivity by the Department of State, we were unable to meet with officials of the Korean or Spanish Governments or any Spanish utilities.

--Because of comparable sensitivities, we did not meet with government or utility officials of Brazil, Iran, Romania, or South Africa, although they had purchased nuclear reactors from foreign companies.

--IAEA does not provide member nations with the results of its inspections or any related documents. Thus, this report does not reflect problems associated with a specific nation or facility, but rather includes a general overview of safeguards implementation.

--For competitive reasons, companies are guarded in releasing information about their nuclear activities. Also, most Government reports on commercial nuclear activities only contain aggregated data.

--Government decisions on the most controversial exports normally involve sensitive or classified information. Thus, this report does not present a detailed review and analyses of specific Government export decisions, but rather addresses the export control process and ways it can be improved.

--The Reagan Administration has not yet announced what policies it will follow in carrying out U.S. non-proliferation goals, and related domestic issues. The policies may be substantially different than those of the Carter Administration which are addressed in this report.

Issues not addressed

It is important to recognize that this report is not a comprehensive evaluation of all the components of the U.S. non-proliferation strategy. For example, the report does not consider the implementation and impact of the foreign aid sanctions provided in the 1975 and 1976 amendments to the Foreign Assistance Act of 1961. Although the report includes an overview of the evolution of U.S. non-proliferation strategy and comments on the Carter Administration's reprocessing and breeder reactor development policies, it does not consider alternative strategies.

CHAPTER 2

OVERVIEW AND PERSPECTIVE

The possibility that peaceful use of nuclear energy can contribute to the proliferation of nuclear weapons is the center of the international controversy about nuclear energy. There is considerable debate about how closely nuclear energy for peaceful use can be linked to the proliferation of nuclear weapons. This chapter discusses the potential link between a peaceful commercial nuclear power program and the development of nuclear weapons and explains the objectives and evolution of the U.S. non-proliferation policy.

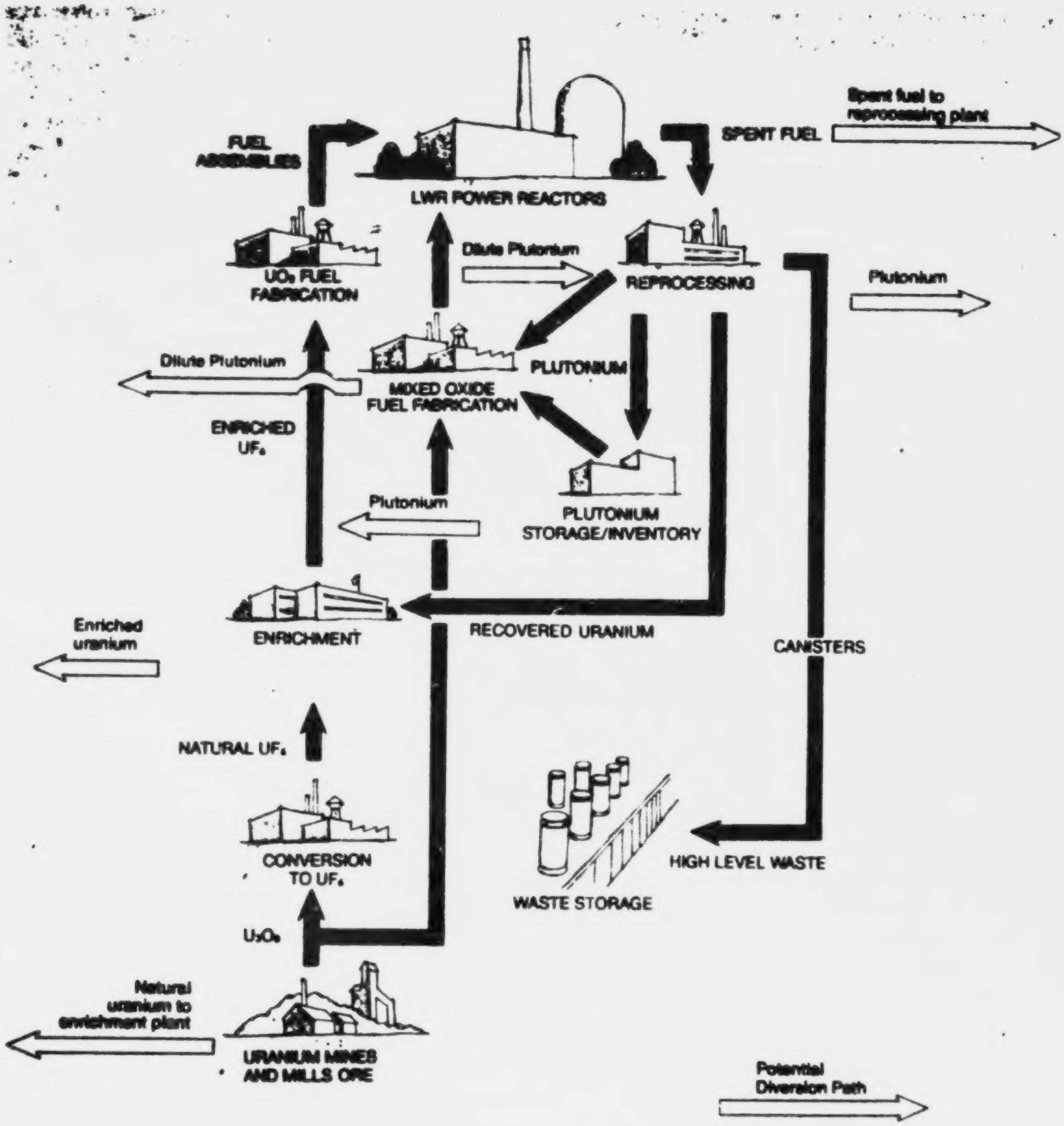
LINKS BETWEEN NUCLEAR POWER AND NUCLEAR WEAPONS

Certain processes, materials, and technologies used in civilian nuclear power programs provide potential links to the development of nuclear weapons. This linkage is strongest at those points in the nuclear fuel cycle where weapons-usable materials--highly enriched uranium or plutonium--are easily accessible. The diagram on page 12 shows possible diversion paths in the fuel cycle for the most common nuclear powerplant--the light water reactor (LWR).

Neither highly enriched uranium nor separated plutonium is commonly used as fuel in the current generation of civilian nuclear power reactors. As a rule, commercial power reactors use natural or slightly enriched uranium. Natural uranium ore contains less than 1 percent of the fissionable isotope U-235 and is used as nuclear fuel in the Canadian-type heavy water reactors. To be used as a nuclear fuel in the light water reactors, the concentration of U-235 needs to be increased or enriched to 3 or 4 percent. In contrast, uranium for nuclear weapons needs to be much more highly enriched. About 15 to 30 kilograms of uranium enriched 90 percent or more are needed for a nuclear weapon, according to the Office of Technology Assessment. Despite the U.S. policy designed to reduce the use of highly enriched uranium, the United States continues to export large quantities of it for use in the world's nuclear research reactors. Also, U.S. efforts to restrain the spread of enrichment technology have not been totally successful, and the capability of nations to enrich uranium is expanding.

Plutonium is a man-made element produced as a byproduct of uranium-fueled reactors. If separated from the spent fuel by chemical reprocessing, it can then be refabricated for use as a fuel for either the current or next generation of nuclear power reactors. According to the Office of Technology Assessment, about 5 to 10

LIGHT WATER REACTOR FUEL CYCLE


FUEL ASSEMBLIES
LWR POWER REACTORS
SPENT FUEL
Spent fuel to reprocessing plant
UO_2 FUEL FABRICATION
Dilute Plutonium
REPROCESSING
Plutonium
MIXED OXIDE FUEL FABRICATION
PLUTONIUM
Dilute Plutonium
ENRICHED UF_6
PLUTONIUM STORAGE/INVENTORY
Plutonium
ENRICHMENT
RECOVERED URANIUM
Enriched uranium
CANISTERS
NATURAL UF_6
CONVERSION TO UF_6
WASTE STORAGE
HIGH LEVEL WASTE
U_3O_8
Natural uranium to enrichment plant
URANIUM MINES AND MILLS ORE
Potential Diversion Path

SOURCE: OFFICE OF TECHNOLOGY ASSESSMENT

kilograms of plutonium are needed to make a nuclear weapon. Among its peaceful uses, plutonium has great value as fuel in breeder reactors which are currently under development. Breeder reactors are particularly attractive to nations, such as West Germany, Japan, and the United Kingdom, which have nuclear energy programs but lack indigenous uranium resources. These nations, along with Belgium, France, and the Soviet Union, have a high interest in the potential commercial development of breeder reactors.

The debate over how strong the link is between commercial nuclear power programs and weapons development revolves around the probability or the extent that a nation intent on developing a nuclear explosive capability would use or rely on its commercial nuclear power program. One side argues that the most direct and least costly course for a nation determined to develop nuclear weapons would be to develop facilities dedicated to producing weapons-grade material, as all the nations that have acknowledged exploding a nuclear device, except for India, have done. They argue that the time and cost involved in building commercial nuclear power plants and enrichment or reprocessing facilities to produce highly enriched uranium or plutonium, compared to the time and cost of acquiring such material from dedicated military facilities, makes the commercial route unrealistic and impractical. Further, they argue that the plutonium produced in commercial power reactors is of poor quality for weapons purposes.

However, those who see a strong and direct link argue that if a non-weapon nation has acquired a nuclear reactor for civilian use and has enrichment or reprocessing facilities and/or stocks of plutonium or highly enriched uranium for civilian use, then the time and costs associated with a decision to use these facilities or stocks for weapons purposes will be greatly reduced. This argument assumes that a commercial nuclear power program leads a nation down an ambiguous path that not only gives it the option of developing nuclear weapons, but makes such an option very tempting. Thus, a commercial nuclear power program can provide a cover to conceal a nation's military intention until it is too late for counteractions. The thrust of this argument states that the nuclear material and technology acquired in operating research or power reactors can be used in a program to develop weapons.

There is no question that nuclear technology and materials which are intended for peaceful purposes can be used, to varying degrees, in making nuclear weapons. The technology and experience accumulated in conducting civilian nuclear energy programs has significantly lowered the technical barriers to nuclear weapons proliferation.

EVOLUTION OF U.S. NUCLEAR NON-PROLIFERATION STRATEGY

The NNPA attempts to prevent or slow down the proliferation process while promoting the peaceful uses of nuclear energy. These two-pronged objectives have remained an integral part of all U.S. non-proliferation efforts. Methods to attain them are constantly evolving and being revised to reflect changing world conditions and diminishing U.S. influence over how other nations use nuclear energy.

The United States, through the 1960s, was the dominant supplier of nuclear reactors, components, and fuel enrichment services. Consequently, the United States was able to exercise considerable influence over the nuclear programs and policies of other nations. U.S. influence was generally directed toward promoting the development of commercial nuclear power. However, other nations are now capable of manufacturing and marketing nuclear reactors and components and constructing fuel enrichment facilities. Therefore, the U.S. ability to influence foreign nuclear programs and policies has diminished. This diminished influence comes at a time when the United States is attempting to promote worldwide acceptance of more stringent non-proliferation conditions. The problem has been for the United States to adjust its foreign nuclear policies during a period when its marketplace leverage is declining.

Current U.S. non-proliferation strategies are directed at slowing and ensuring effective controls over the spread of other nations' ability to produce plutonium and highly enriched uranium that can be used in weapons. Supporting policies have been adopted which attempt to (1) deny or control access to sensitive nuclear material, equipment, and technology and (2) provide incentives, in the form of nuclear fuel supply assurances, to encourage other nations not to acquire and develop nuclear fuel cycle capabilities that provide plutonium and highly enriched uranium.

The NNPA provides a stringent, but flexible, legislative framework for U.S. nuclear cooperation with other nations in the peaceful uses of nuclear energy. The NNPA attempts to influence the capability of nations for producing nuclear weapons. Its enactment was quite controversial abroad. Some domestic interests urged greater use of U.S. influence, and/or leverage, derived primarily from U.S.-supplied enriched uranium, to pressure other nations to commit themselves to stronger non-proliferation measures. Others warned that radical unilateral action would place the United States at a competitive disadvantage in the world nuclear market and thereby reduce U.S. ability to influence foreign nuclear power decisions.

The NNPA has been implemented in conjunction with other U.S. policies. President Carter's linkage of domestic reprocessing and breeder reactor development policies to U.S. non-proliferation efforts has been a prominent component of overall U.S. strategy. In April 1977, President Carter announced a series of policies which changed the direction of the U.S. nuclear program by deferring U.S. commitments to the commercial use of plutonium. 1/ Commercial reprocessing and the recycling of plutonium was deferred "indefinitely"; the U.S. breeder reactor program was reoriented from its emphasis on early commercial deployment of the liquid metal fast breeder reactor to more research and development and an assessment of technologies and fuel cycles which do not involve direct access to weapons-usable materials.

In addition, policies were adopted by the executive branch which strengthened U.S. nuclear export controls. An embargo was imposed on significant exports of separated plutonium, and the policy to embargo the export of enrichment and reprocessing plants or other sensitive nuclear technology was reaffirmed. Policy with regard to supplying highly enriched uranium was redirected toward (1) reducing the amount exported, (2) minimizing inventories abroad, and (3) encouraging the conversion of research reactors to lower enriched fuels.

1/President Ford in October 1976 linked commercial reprocessing in the United States to non-proliferation issues. However, until the Carter Administration's series of policies, the United States, like other nations, had been working toward early commercialization of plutonium-fueled breeder reactors. The Administrator of the former Energy Research and Development Administration had set 1986 as a milestone for determining whether the United States should deploy commercially the breeder reactor as the next generation of nuclear power. In addition, NRC was working toward a decision on whether commercial reprocessing and plutonium recycling should be permitted in the United States from a health and safety standpoint. Both of these decision-making processes have since been postponed indefinitely.

The executive branch also urged other nations to adopt similar domestic nuclear power policies and export controls. International reaction has been mostly negative. Some industrial nations with major commitments to using plutonium to reduce their dependence on imported energy supplies perceive the U.S. strategy as a threat to their energy independence and, in some cases, to the health of their export-oriented nuclear industries. Some lesser developed nations believe the U.S. policy is a threat to their development of nuclear power as an energy source.

The executive branch policies go significantly beyond the requirements of the NNPA. As discussed in Chapter 10, the domestic policies on reprocessing and breeder reactor development have had limited impact on the programs and plans of other nations and may have been counterproductive to U.S. non-proliferation efforts.

Evolution of U.S. non-proliferation strategy since "Atoms for Peace"

The "Atoms for Peace" program, proposed by President Eisenhower in 1953 and authorized by the Congress with the passage of the Atomic Energy Act of 1954 (42 U.S.C. 2011), provides the foundation for some of the most important political instruments that the United States relies upon to deter nations from developing nuclear weapons. After nuclear explosions by the Soviet Union and the United Kingdom, the United States shifted from a strict policy of secrecy and denial of nuclear technology to other nations, to a policy of sharing the benefits of the peaceful uses of nuclear energy under a system of political commitments which required safeguards against nuclear weapons proliferation.

Agreements for cooperation

"Agreements for Cooperation Concerning the Civil Uses of Atomic Energy" were the first legal instruments to evolve from the "Atoms for Peace" program. These intergovernmental agreements negotiated between the United States and other nations or groups of nations provide the basic framework for U.S. nuclear exports and specify the safeguards and controls to be applied. By the end of 1955, 22 such agreements had been negotiated. At one time, agreements were in effect with more than 40 individual nations. As of January 1981 the United States had in effect agreements with 21 individual nations and 2 international organizations.

Agreements for cooperation are tailored to the needs of recipients, changes in U.S. statutory and regulatory requirements, new international treaties, technological developments, and an evolving U.S. non-proliferation policy.

They also differ according to the scope of nuclear cooperation involved. Most agreements cover both research and power applications of nuclear energy; a few cover only research or power. The duration of the agreements for research applications ran for 5 to 10 years, while agreements for power applications ran up to 40 years. Newer agreements covering both research and power applications generally run for 30 years.

Agreements for cooperation are a precondition for export of nuclear reactors and most special nuclear material 1/ to other nations. They generally do not legally commit the United States to make such exports, however. Legal commitments exist only with the conclusion of specific supply contracts and the issuance of specific export licenses. Certain controls in the agreements are designed to assure both the United States and the recipient nation or group of nations that materials and equipment transferred between the parties will be used for authorized purposes only and will be properly safeguarded.

The content of the agreements has undergone considerable change. Initially, the agreements contained provisions for U.S. bilateral inspections and verification to ensure compliance with the safeguard provisions. In 1963 the executive branch began to transfer the safeguards responsibility to IAEA. Accordingly, provisions were incorporated into the agreements to permit trilateral safeguards agreements among IAEA, the United States, and the third party to the agreement for cooperation. When the Non-Proliferation Treaty came into force in March 1970, provisions were added to all agreements to recognize this channel for exercise of IAEA safeguards as an alternative to trilateral arrangements. The NNPA requires that new agreements for cooperation contain certain provisions, and directs the executive branch to seek to upgrade provisions in older agreements to reflect the new requirements. Although several agreements have been renegotiated, major U.S. trading partners have been reluctant to renegotiate their existing agreements. This issue is discussed further in chapter 6.

International safeguards

The origins of international safeguards trace back to President Eisenhower's Atoms for Peace address before the

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1/Special nuclear material is defined under the Atomic Energy Act as plutonium, uranium enriched in the isotope U-235, or uranium containing the isotope U-233.

United Nations in 1953, when he proposed that an international atomic energy agency be established. IAEA came into existence in 1957 as an autonomous organization of the United Nations. Over 100 nations are now members. In general, its mission is to promote the peaceful uses of nuclear energy without contributing to the military uses of nuclear energy. In conjunction with this mission, it has assumed responsibility for administering a system of international safeguards with the objective of timely detection and hence deterrence of illicit diversion of nuclear materials from peaceful nuclear activities.

A nation submitting its peaceful nuclear activities to IAEA safeguards is providing a major political and legal commitment not to divert materials from such activities for nuclear explosive purposes. IAEA conducts onsite inspections of nuclear activities to verify compliance with this commitment. The continued viability and effectiveness of the IAEA safeguards system have been a major foreign policy objective of the United States since its creation.

The Treaty on the Non-Proliferation of Nuclear Weapons

International safeguards are essentially part of a bargain in which nations are assisted in meeting their peaceful nuclear energy needs in return for accepting international inspections of their nuclear facilities.

The Non-Proliferation Treaty (NPT) 1/ reinforced this bargain and initiated a new era of IAEA safeguards responsibilities under which:

--All parties (currently 115 nations) agree to facilitate cooperation in the peaceful uses of nuclear energy and to require IAEA safeguards on exports of all nuclear material or equipment to a non-nuclear weapon nation.

--Non-nuclear weapon nations pledge not to manufacture or acquire nuclear explosive devices and agree to international verification of their pledge through the application of IAEA safeguards on all peaceful nuclear activities.

--Nuclear weapon nations party to the treaty (currently the United Kingdom, the Soviet Union, and the United States) pledge (1) not to transfer nuclear explosive devices to any recipient or assist any non-nuclear weapon nation in the manufacture or acquisition of nuclear explosive devices and (2) to pursue negotiations on nuclear disarmament.

1/The NPT went into effect in 1970.

The NPT is an unprecedented concept in international relations because it requires a general commitment from non-nuclear weapon nation parties to international inspection of _all_ their peaceful nuclear activities. In non-NPT nations, IAEA applies safeguards only to specific facilities and/or specified nuclear material within the nation. [1]

Policy shift to emphasis on capabilities

By the 1970s, concern was being expressed in the United States that international safeguards and non-proliferation commitments were not enough. India's use in 1974 of plutonium produced in a research reactor and separated in a reprocessing plant--neither facility safeguarded by IAEA--to conduct a "peaceful nuclear explosion" strengthened this view. India's explosion underscored the proliferation danger of peaceful nuclear activities which produce weapons-usable material and occur outside the purview of existing international political instruments. Since then, the United States has increasingly tried to keep the peaceful nuclear programs of non-weapon nations from moving in directions which would provide them direct access to weapons-usable materials, without effective controls.

India's nuclear explosion caused a shift in emphasis for U.S. non-proliferation strategy. Before the explosion, the United States relied primarily on international political instruments as the means for restraining nuclear proliferation; after the explosion, a series of congressional and executive branch initiatives were implemented which focused on the capability of nations to produce nuclear weapons.

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[1] The NNPA contains two nuclear export licensing criteria involving IAEA safeguards. The first requires application of safeguards on all U.S. nuclear exports. The second requires non-nuclear weapon nations receiving a U.S. nuclear export after March 10, 1980, to accept IAEA safeguards on all their nuclear activities at the time of the export.

Although the second criterion is often referred to as a full-scope safeguards requirement, it differs from the NPT full-scope safeguards requirement. The NPT requires a commitment from non-nuclear weapon nation parties that such safeguards will be maintained _in the future_; in contrast, the NNPA criterion requires only that full-scope safeguards be in effect _at the time of a U.S. export_. Thus, some observers have referred to NNPA safeguards as _de facto_ full-scope safeguards.

According to ACDA the increased emphasis on "capabilities" also stemmed from the increase in the price of oil and the growing interest in nuclear power by many nations, along with the substantial commitments to the use of plutonium in commercial applications advanced nuclear nations were about to make. The United States continued to place major emphasis on political instruments, according to ACDA, but it also had to address the serious issues raised by the possible widespread use of weapons-usable material in peaceful nuclear applications.

Foreign aid sanctions

A major congressional initiative to focus on the technical capability of nations to produce nuclear weapons was the foreign aid sanctions provided for in the 1975 and 1976 amendments to the Foreign Assistance Act of 1961 (22 U.S.C. 2429). Unless the President takes special action, these amendments require the cut-off of certain funds to foreign-aid recipients that deliver or receive reprocessing or unsafeguarded nuclear enrichment materials, equipment, or technology. Under this law, the executive branch announced its intention to phase out military and economic aid to Pakistan in April 1979. The executive branch was concerned that parts of Pakistan's nuclear program involving construction of an unsafeguarded enrichment plant were not peaceful. However, the Soviet Union's invasion of Afghanistan prompted the United States to renew its offer of military and economic assistance to Pakistan.

Nuclear suppliers' guidelines

In 1974 the executive branch began an effort to establish common non-proliferation guidelines for nuclear exports among major nuclear supplier nations. The guidelines, published in February 1978 by IAEA, established rules for the supply and use of certain nuclear material and equipment. 1/ The guidelines, however, have not gained complete international acceptance. Many developing nations believe the guidelines discriminate against the consumer nations and perpetuate the power, status, and control of the supplier nations. Further, some developing nations believe the guidelines are inconsistent with the spirit and intent of Article IV of the NPT, designed to promote international nuclear cooperation and trade.

1/"Communications received from certain member states regarding guidelines for the export of nuclear material, equipment or technology," IAEA Doc. No. INFCIRC/254 (1978).

The international nuclear fuel-cycle evaluation

As a step toward achieving an international consensus on ways to minimize the risks associated with the growing number of nations with direct access to separated plutonium and highly enriched uranium, President Carter, in April 1977, proposed an international nuclear fuel-cycle evaluation (INFCE). This unprecedented international study was officially launched in October 1977 by the President at a conference attended by representatives of 40 countries and four international organizations. An additional 26 nations subsequently joined the evaluation. Intensive joint studies were conducted regarding key areas of the commercial nuclear fuel cycle relevant to balancing nuclear power needs with proliferation risks.

The evaluation was completed in February 1980. 1/ INFCE was an analytical study of the technical, economic, and institutional aspects of nuclear energy development and a forum for exchanging views; therefore, no nation is bound to its findings and recommendations. This type of forum was not conducive to the development of hard and fast conclusions and, as a result, the INFCE final report contains intentionally ambiguous language. INFCE is credited with heightening worldwide awareness of the proliferation dangers associated with commercial nuclear power programs. One finding of INFCE that appears to be universally accepted is that there are no "technical fixes" that will make any nuclear fuel cycle completely proliferation-resistant. INFCE concluded that preventing proliferation is primarily a political and not a technical matter.

Another finding relevant to U.S. non-proliferation policy was the general repudiation of the U.S. domestic position on reprocessing and breeder reactors. INFCE concluded that

--reprocessing is an essential preliminary to many fuel cycles,

--the basic technologies of reprocessing and subsequent recycling of plutonium are well established, and

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1/"International Nuclear Fuel Cycle Evaluation," published by the International Atomic Energy Agency, Vienna, 1980.

--reprocessing and recycling do not create a greater proliferation risk than other fuel cycle alternatives.

OVERALL OBSERVATIONS

The following observations are offered to provide a perspective for the results of our specific evaluation of the implementation and impact of the NNPA described in this report.

First, the problem of controlling nuclear energy has been a major concern of the United States since the end of World War II. Although the evolution of U.S. non-proliferation strategy has tended to stress progressively greater controls, the United States remains committed to cooperating with other nations in the peaceful uses of nuclear energy. At issue is how to best balance the competing goals of promoting multi-national cooperation and U.S. reliability as a trading partner while, at the same time, attempting to strengthen worldwide non-proliferation controls to reduce the risk that nuclear material, equipment, and technology could be used to develop weapons. The challenge for the United States has been to adjust its foreign nuclear policies toward progressively greater controls without sacrificing the ability of U.S. firms to be major suppliers of nuclear exports for peaceful uses during a period when U.S. influence in the international nuclear marketplace is declining.

Second, whether a nation elects to develop nuclear weapons depends on two broad considerations: (1) its military and political motivation to do so and (2) its capability for producing such weapons. The NNPA and the other measures described in this report are directed primarily to the second consideration. The United States is addressing the first consideration by pursuing foreign policies designed to promote peace, strengthen regional and worldwide stability, and create a climate suitable for constructive economic, social, and political development. Examples of specific efforts noted by ACDA are:

--the belief of the Carter Administration that the Strategic Arms Limitation Talks (SALT) process is important to prevent horizontal proliferation by demonstrating nuclear weapon nations' compliance with the disarmament provision of the NPT and as an admission that nuclear arms races are counterproductive to national security objectives,

--a Comprehensive Test Ban treaty, currently under negotiation, which would prohibit all nuclear weapons explosive testing, and

- --the Treaty for the Prohibition of Nuclear Weapons in Latin America, commonly called the Treaty of Tlatelolco. Under this treaty, 22 Latin American nations have agreed not to manufacture or acquire nuclear weapons and not to permit such weapons to be stored or deployed in their territories.

Third, despite the systems of political instruments and international safeguards commitments used to deter nations from developing nuclear weapons, gaps and weaknesses exist. For example, IAEA safeguards need improvements, the nuclear supplier's guidelines do not provide for common international sanctions in the event of violations, some key nations with substantial nuclear capability are not parties to the NPT, and not all nations accept U.S. nuclear export control policies.

Finally, when the NNPA was passed, its proponents viewed nuclear weapons proliferation as a grave and urgent threat to the national security of the United States which transcended many other foreign policy issues. For example, in signing the NNPA into law, President Carter said

> "While I recognize that some of these provisions may involve adjustments by our friends abroad, this more comprehensive policy will greatly increase international security. I believe that they will ultimately join us in our belief that improved world security justifies the steps which we all must take to bring it about. Control over the spread of nuclear weapons on our planet is one of the paramount questions of our time."

The new administration and the new Congress will have to determine the relative priority to be accorded non-proliferation matters. The judgments made on this issue will affect U.S. relations with other nations, international security, domestic nuclear energy decisions, and international nuclear trade. The following chapters discuss in detail the implementation and impact of the NNPA over the last three years with the aim of helping the new administration and the 97th Congress make those judgments.

CHAPTER 3

TITLE I--NO CHANGES NEEDED, BUT INTERNATIONAL FUEL CYCLE ASSURANCES HAVE NOT MATERIALIZED

Title I states that, as a matter of national policy, the U.S. should take such actions and measures as are necessary to assure that an adequate supply of nuclear fuel is available to those nations or groups of nations which adhere to effective non-proliferation policies.

It also mandates the President to pursue this goal through both domestic and international initiatives. The domestic initiatives revolve around assuring that the United States has the capacity to provide an adequate supply of fuel to both its domestic and international customers. The international initiatives require the President to seek binding international agreement to establish international facilities that can provide nuclear fuel and storage facilities for spent fuel and special nuclear materials.

The nuclear fuel supply assurances are intended to function as a two-pronged incentive designed to (1) dissuade other nations from prematurely acquiring indigenous enrichment and/or reprocessing capabilities, and (2) make the upgraded safeguards and non-proliferation commitments called for in the other titles more acceptable. However, we believe the current worldwide overcapacity of enrichment services has diminished concerns about nuclear fuel supplies and, as a result, has reduced the potential for U.S. enrichment services and/or international fuel supply assurances to be a meaningful and realistic incentive.

MORE U.S. ENRICHMENT CAPACITY APPARENTLY NOT NEEDED TO MEET FOREIGN DEMAND

The NNPA commits the United States to having sufficient enrichment capacity to meet foreign demand on a long-term basis. This policy emanates from the U.S. decision in 1974 to close its worldwide enrichment order books and not accept any new applications for enrichment services until additional enrichment capacity could be constructed. The United States, then the world's primary provider of enrichment services, had left most of the world's enriched uranium users without a known future source of additional fuel for their nuclear power reactors.

The suspension lasted almost four years, during which time foreign enrichment suppliers emerged and began establishing a solid position among non-U.S. customers. The unexpected U.S. decision not to accept any new contracts for enriching uranium contributed to the doubts that had been raised over U.S. reliability as a supplier of enrichment services.

By committing the United States to a policy of having the enrichment capacity available to meet foreign demand on a long-term basis, the NNPA seeks to assure foreign customers that the United States will not turn them away for lack of capacity as it did in the past. Because constructing enrichment plants is very expensive, a balance is needed between having too much enrichment capacity available and not enough to satisfy demand. Determining the appropriate balance is further complicated by the fact that some believe that a degree of overcapacity may be a desirable means for the United States to underscore its commitment to be a reliable supplier of enrichment services and to discourage other nations from building their own uranium enrichment capability.

As discussed in our November 1980 report, 1/ foreign concerns over U.S. reliability are generally produced by delays and uncertainties in the export licensing and subsequent arrangement process, and this problem cannot be solved by building additional capacity. Also, the current abundance of U.S. enrichment capacity has apparently not been successful in discouraging certain nations from developing indigenous enrichment capabilities. While DOE believes that it may be possible to justify building additional capacity or even an overcapacity to promote U.S. non-proliferation policies, we do not believe this argument has been convincingly developed and supported.

In a November 1977 report to the Congress, 2/ we recommended that, to facilitate planning for future enrichment plants, DOE should establish specific goals for the percentage of the foreign market it expects to serve. In addition, we stated that unless "reliable supplier" is better defined

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1/See our report entitled "Evaluation of Selected Features of U.S. Nuclear Non-Proliferation Law and Policy" (EMD-81-9, November 18, 1980).

2/See our report entitled "Uranium Enrichment Policies and Operations: Status and Future Needs" (EMD-77-64, November 18, 1977).

in terms of the percentage of the foreign market the United States may want and is able to obtain, it would be difficult to determine whether U.S. non-proliferation objectives are being met. DOE disagreed with our recommendation; its only goal is to capture as much of the market as possible. DOE still has not established specific goals for the percentage of the foreign market to be served by U.S. enrichment services.

To make sound financial decisions and ensure the availability of U.S. enrichment services to satisfy demand, as the NNPA mandates, we believe it more important now that specific short-term and long-range goals be established for the percentage of the foreign enrichment market the United States may want and can realistically expect to obtain. This is particularly important because of the expected increase in availability of enriched uranium from foreign enrichers and surplus foreign stockpiles. Without setting specific goals, it will be difficult to determine the proper balance between constructing too much or too little enrichment capacity to satisfy foreign demand.

Additional enrichment capacity under construction

DOE has two major construction projects underway to increase U.S. enrichment capacity to a maximum of 36.1 million separate work units (SWU) 1/ per year by 1989. The first project is scheduled to be completed in 1983 and will increase the capacity of DOE's three existing gaseous diffusion enrichment plants to 27.3 million SWU annually.

The second project involves the construction of an additional enrichment facility. This project was initially authorized in December 1975 and was originally expected to provide an additional capacity of 8.8 million SWU per year. At that time construction of a gaseous diffusion plant was planned; however, in April 1977 the President announced that the new plant would use the gas centrifuge enrichment

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1/The production capacity of enrichment plants is defined in terms of SWUs. It is a measure of the amount of effort expended to separate a given amount of uranium hexafluoride gas into two components--one having a higher concentration and one having a lower concentration of the uranium-235 isotope.

process. 1/ In May 1978, DOE revised the construction schedule for the gas centrifuge plant because of reduced demand for U.S. enrichment services. Instead of completing the entire plant in 1988, DOE decided to construct only the first 2.2 million SWU increment and delay construction of the remaining 75 percent of authorized capacity. Because of budget cuts, the completion date for this first increment has been delayed to 1989. DOE plans call for additional 1.1 million SWU increments to be added as demand materializes, and for long-range planning purposes, completion of the entire 8.8 million SWU plant in 1994.

Centrifuge facility may not be needed now

Circumstances have changed since decisions were made to authorize a new plant in 1975 and to use the energy-efficient centrifuge technology in 1977. A slowdown in the growth of nuclear power and the emergence of foreign enrichment capabilities have created a "buyers market" for enrichment services. A worldwide surplus of enrichment capacity is expected in the mid-1980s. DOE is operating its enrichment complex at about 40 percent of capacity and has delayed construction of 75 percent of the new enrichment facility. For these and other reasons, we reported to the Congress, in November 1980, that it was not apparent that the new $6.4 billion (1982 dollars) centrifuge enrichment facility authorized in 1975 was needed for the United States to have adequate enrichment capacity to meet foreign demand. 2/

A potential benefit of delaying the construction schedule for the centrifuge facility is the possible development of the advanced enrichment technologies, known as advanced isotope separation (AIS), as candidate technologies for the next increment of enrichment capacity. The AIS technologies offer the potential of cutting enrichment costs in half and

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1/The gas centrifuge method of enriching uranium uses a different technology than gaseous diffusion to separate the uranium-235 isotope. The gas centrifuge process is believed to offer economic and flexibility advantages over the diffusion process, in that it consumes about 5 percent of the amount of electric power required by the diffusion process, and can be built in modular units quicker than the construction of nuclear powerplants, thus allowing capacity to be more closely matched with demand.

2/See our report entitled "Evaluation of Selected Features of U.S. Nuclear Non-Proliferation Law and Policy" (EMD-81-9, November 18, 1980).

enriching depleted uranium tails left over from existing and planned enrichment plants. Current DOE plans call for a commercial demonstration plant to begin operation at the end of fiscal year 1990 and the first production plant to begin operation at the end of fiscal year 1993.

We recommended in our November 1980 report that the Secretary of Energy, in future budget requests for construction of uncommitted increments of enrichment capacity, specifically demonstrate that the additional capacity is needed to meet demand, to further U.S. non-proliferation objectives, or is justified on an economic basis. Economic justification should fully and objectively consider options involving use of AIS technologies for the new capacity. If convincing documentation was not presented, we concluded that the Congress should consider not appropriating additional funds for construction of uncommitted increments of centrifuge capacity.

In responding to our recommendation, DOE informed the House Committee on Government Operations and the Senate Committee on Government Affairs, in January 1981, that it agreed that additional enrichment capacity should be completely and objectively justified in future budget requests. DOE stated that funding for the initial 2.2 million SWU increment is included in the fiscal year 1982 budget and will be fully justified in the budget request and related testimony in much the manner we recommended.

In its response, DOE cited two recent studies which concluded that construction of the first centrifuge increment should continue, and to delay until AIS is available, would run a serious risk of not having sufficient enrichment capacity at a crucial time. One of the studies, by the independent Energy Research Advisory Board, pointed out that while gas centrifuge is the best technology on hand today to expand U.S. capacity, its long-term role will be influenced by the progress in developing AIS technologies. Accordingly, DOE should be prepared to adjust its construction schedule for remaining centrifuge increments based on the progress of the AIS development program. Although the study found that insufficient information existed to comment on AIS' probability of success, it did acknowledge that AIS is expected to play an important role in the 1990s, and that if AIS's full potential can be achieved in terms of low cost SWU, multibillion dollar savings could be realized by the year 2000.

The second DOE study, entitled "Uranium Enrichment Strategy Study," examined a range of variables and concluded that even at the extreme--low demand for enrichment services and early (1990) development of AIS--construction of the first 2.2 million SWU increment of new capacity is warranted.

At higher levels of demand and/or later dates of AIS availability, the economic benefits become increasingly more attractive, and constructing the entire 8.8 million SWU centrifuge facility is the preferred strategy. The study also recommended that advanced gas centrifuge and AIS technologies should be vigorously pursued.

Based on a preliminary review of these two studies, we found that DOE addressed some of our concerns over whether the first centrifuge increment is economically justified. However, in this period of intense budget scrutiny and fiscal restraint, projected long-term cost savings from current Government investments must be weighed against the potential adverse affects of these expenditures to the economy. Still at issue are (1) whether DOE's projected cost savings for 1990 and beyond, resulting from scheduled centrifuge construction, justify making the investment now, and (2) whether alternative actions that would permit the delay of investment in the new enrichment facility have been fully considered.

We approached this matter from a non-proliferation perspective and stand by our earlier conclusion that it is unlikely that the centrifuge facility will significantly further U.S. non-proliferation objectives. The magnitude of the costs and the promise of technological improvements suggest that continued top level DOE management and congressional scrutiny of this project is warranted to assure the future deployment of the most desirable enrichment technologies.

Decision not yet needed on more enrichment facilities

Title I (sec. 103) also provides for the President to promptly undertake a study to determine the need for additional U.S. enrichment capacity to meet domestic and foreign needs and to promote U.S. non-proliferation objectives abroad. The President reported to the Congress in October 1979 1/ that additional capacity beyond the currently authorized 36.1 million SWU 2/ per year would not be needed until the mid- to late-1990s, and that additional centrifuge capacity can be provided in about 6 years after the start of construction. Based on this, construction of additional capacity would not need to start until about 1988 at the earliest. Since

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1/"Need for Additional U.S. Uranium Capacity and Desirability of and Options for Foreign Participation in New U.S. Uranium Enrichment Facilities," a Report by the President, October 1979.

2/The 8.8 million SWU centrifuge facility discussed earlier in this chapter is included in the 36.1 million SWU.

centrifuge capacity can be added in less time than it takes to build a light water reactor, the President's report concluded that there is adequate time to monitor the growth of nuclear power and still assure that additional U.S. enrichment capacity is brought on-line in a manner consistent with demand.

Beyond the currently authorized 36.1 million SWU per year, we concur with the report's conclusion that a decision to start construction of additional enrichment capacity will not be needed until about 1988 at the earliest.

INTERNATIONAL UNDERTAKINGS HAVE NOT PRODUCED TANGIBLE RESULTS

Title I (sec. 104) requires the President to "...institute prompt discussions with other nations and groups of nations, including both supplier and recipient nations, to develop international approaches for meeting future and worldwide nuclear fuel needs." We found that the level of U.S. effort in this area varied substantially. In some instances, professional judgments made by both DOE and State Department officials appeared appropriate. However, in other instances, U.S. actions or lack of actions indicated uncertainty and sent mixed signals to our trading partners.

International nuclear fuel authority

The NNPA requires the U.S. to seek the establishment of an international nuclear fuel authority (INFA) to provide an international fuel assurance mechanism. Our review of the legislative history and discussions with agency officials indicated that the type of international fuel bank originally envisioned was one that could serve as a primary fuel source for those nations desiring to increase their long-term fuel assurances by contracting with an international organization rather than individual supplier nations. The rationale behind INFA was that the availability of internationally controlled fuel would provide recipient nations with an alternative fuel supply, thus reducing their perceived needs to construct indigenous enrichment or reprocessing facilities. To date, U.S. efforts in this area have been less than successful. No international fuel authority or rules governing such an authority have been established; much of the world has disagreed with the U.S. reprocessing position; and new enrichment and reprocessing facilities are planned or are underway in other nations.

Discussion with State Department and DOE officials revealed that other supplier nations are not particularly anxious for an international fuel bank to be created. An international bank designed to be a primary source of fuel appears unacceptable to some suppliers because it places them in a position of having to compete with an international organization for customers. Also, some suppliers think that because there are more consumer nations than supplier nations such an international fuel authority could be controlled by the consumer nations who would have little regard for the suppliers' economic wellbeing. U.S. officials have concluded, therefore, that although promoting the INFA concept at this time would not be productive, establishing an international assurance arrangement of narrower scope may be possible.

Such an arrangement had been discussed in INFCE and is currently characterized by U.S. officials as having the best chance for success. The arrangement would be international in membership, but would serve as a secondary, not a primary fuel source. Its authority would be limited to providing fuel to member nations who find themselves in a position where contracted fuel cannot be delivered for reasons other than non-proliferation violations, i.e., physical disasters or political disagreements. The United States has been discussing its ideas about the structure of such a bank with a limited number of cooperative nations. To date, feedback has been mixed, but U.S. officials expect the proposal to be explored further during meetings of IAEA's Committee on Assurance of Supply.

Although IAEA's Committee on Assurance of Supply was just getting underway at the time this report was being written, about 30 countries were participating in the effort. The Committee is scheduled to explore a number of fuel assurance arrangements ranging from establishing an international organization capable of being a full-fledged alternative supply source to secondary systems designed to provide members with fuel assurances only during emergencies.

Another major category of issues that needs to be addressed in evaluating the fuel authority concerns the circumstances and rules governing the use and eventual disposition of the fuel. For example:

--What constitutes a legitimate need for emergency fuel?

--What mechanism will be used to determine if a legitimate need does in fact exist?

--Should the recipient, fuel bank, or original supplier be responsible for and/or control the disposition of bank-supplied spent fuel?

Such issues have proven to be highly controversial in a number of nations. Given these difficulties, it is uncertain how readily they can be resolved in the international arena where both domestic and international concerns must be considered.

International Storage of Special Nuclear Material

Title I (sec. 104(a)(3)) also requires the President to pursue the establishment of international "facilities for the provision of nuclear fuel services, including the storage of special nuclear material." This requirement encompasses two related activities: (1) international spent fuel repositories, and (2) an international plutonium storage regime.

International Spent Fuel Storage Repositories

The United States favors establishing international spent fuel storage repositories to provide alternatives to those nations leaning toward commercial reprocessing solely for waste disposal purposes. Some nations believe that the benefits of reprocessing spent fuel outweigh the proliferation risks cited by the United States and, therefore, they have little, if any interest, in this concept. Other nations, with small nuclear programs or planned programs, may favor reprocessing because they view it as a partial solution to their spent fuel storage problems. However, such nations could also find that the services of an international spent fuel storage facility would solve their domestic storage problems. This type of service may provide the incentive necessary for these nations to forego reprocessing.

Since the NNPA's enactment in March 1978, the United States has participated in discussions on establishing international spent fuel storage facilities, and agreed to participate in a joint U.S./Japanese study on the feasibility of storing spent fuel on a Pacific island. Previous discussions have included particular locations in the Pacific Ocean. However, those inhabiting this part of the globe have opposed the proposal to use their backyard as a "nuclear dump." To date, U.S. efforts in this area have not resulted in the creation of an international spent fuel storage facility.

International Plutonium Management and Storage Regime

INFCE projected that, for at least two decades, plutonium production will exceed the amount needed to meet energy demands. In certain cases, separation of plutonium from spent fuel before it is needed is likely to increase proliferation risks by allowing the spread of scattered plutonium stockpiles. To reduce such risks, effective international control and management of the material is needed.

The fundamental objectives of an international plutonium management and storage regime would be to

- --prevent national stockpiling of plutonium in participating nations, and thus reduce the danger of the production of plutonium-based nuclear weapons or other nuclear explosive devices by placing excess stocks of plutonium in internationally controlled storage;
- --eliminate the need for such stockpiling by ensuring supplies of plutonium to participating nations for specified needs in reactors or for research;
- --lessen the possibility of seizure/theft of plutonium by subnational or terrorist groups; and
- --improve the ability to track international plutonium movements.

In spite of the need for controlling the storage and use of separated plutonium stocks, such a system does not yet exist.

Although the United States is participating in IAEA's International Plutonium Storage Expert Group, it has raised concerns regarding (1) the premature separation of plutonium, (2) the need for a plutonium management and storage regime to exercise vigorous non-proliferation controls, and (3) the need for international approaches to spent fuel storage. The United States is also urging that any study of an international regime include the entire period from plutonium production in a reprocessing plant to reirradiation in a reactor or use in research.

Officials of some nations participating in the IAEA Expert Group expressed concern that the U.S. preference for international spent fuel storage has lessened its commitment to organizing an international plutonium management and storage regime. They say that U.S. policymakers fear that supporting international plutonium storage rather than spent fuel storage would be perceived as a change in the U.S. policy on reprocessing. Executive branch officials characterize their participation as constructive but acknowledge without U.S. leadership, which was impractical in view of the Carter Administration's position on reprocessing, significant progress toward developing an international plutonium management and storage regime is unlikely. Furthermore, they note that other nations are not putting their full weight behind such a regime.

ACDA officials agree that such a regime is desirable and emphasize the need for it to be organized to effectively control plutonium storage and its subsequent use. The Department of State also believes that to be an effective non-proliferation mechanism, an international plutonium management and storage regime must exercise proper control over the storage and use of separated plutonium. However, some U.S. officials are concerned that endorsement of such a regime would lead to premature reprocessing and could circumvent current controls (bilateral agreements) over U.S.-supplied nuclear fuel and its ultimate disposition. 1/ For this reason, U.S. officials desire that the international efforts to manage and store plutonium also address the problem of excess plutonium by trying to limit the construction of reprocessing facilities.

U.S. OFFER TO ACCEPT FOREIGN SPENT FUEL

In October 1977, the Carter Administration announced that, in conjunction with a program for the storage of domestic spent fuel from power reactors, the United States was prepared to accept limited quantities of foreign spent fuel for storage when such action would serve U.S. non-proliferation interests. The offer was intended to provide other nations a credible alternative to foreign reprocessing, thereby supporting President Carter's April 1977 commercial reprocessing deferral policy. In 1978 the NNPA (sec. 303) authorized the executive branch to store foreign spent nuclear fuel in the United States after submitting either a detailed generic plan or specific request to the Congress for 60 days, and not receiving congressional disapproval. In early 1979 the Administration submitted legislation to establish a domestic spent fuel storage program, which included a request for authority to accept foreign spent fuel for interim storage and ultimate disposal without congressional approval. The proposed legislation was not passed by the Congress and no commercial reactor spent fuel has been accepted by the United States to date, although spent fuel from foreign research reactors is routinely returned to the United States.

The lack of follow-through over the last three years on President Carter's offer has diminished U.S. credibility abroad. During our review, we learned that the offer is not viewed by many foreigners as a credible alternative to reprocessing. Several senior European nuclear energy officials were particularly troubled by the inconsistency of the United States making such an offer when it has not developed a

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1/We discuss executive branch implementation of these controls in chapter 5.

domestic nuclear waste management program. Waste management issues in the United States are inexorably linked to national policy decisions regarding the future role of nuclear power and the need for reprocessing and breeder reactor development.

In addition, DOE officials pointed out several logistic and public acceptance difficulties impeding Federal storage of spent fuel in the United States. For example:

--Federal storage facilities may not be available until late 1985, at the earliest.

--Uncertainties over the future of nuclear power may undermine the commercial incentive to construct the spent fuel shipping casks required to transport spent fuel to the United States.

--The public controversy currently surrounding the storage and movement of spent fuel may increase when foreign spent fuel is transported across state lines.

The lack of an established waste management program for domestic spent fuel in the United States also raises an equity issue. Although DOE has supported a policy to provide domestic utilities spent fuel storage capacity until the Federal Government can provide a long-term or permanent storage/disposal solution, the Congress has not yet acted on enabling legislation. Some nuclear industry representatives believe it is inappropriate for the Federal Government to provide spent fuel storage services to foreign nations when such services are not yet available to domestic utilities. In a previous report 1/, we indicated that the near-term need had not been established for Federal interim storage facilities to handle spent fuel from domestic utilities.

Following-through on the offer could provide several benefits.

--U.S. credibility abroad could be enhanced.

--It could provide some nations an alternative to reprocessing which they might not otherwise have.

--It could also provide some nations with an option to resolve their spent-fuel disposition needs.

It should be recognized that even if foreign spent fuel is accepted into the United States, commercial reprocessing services are likely to continue, and be sought, by nations with major

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1/See our report entitled, "Federal Facilities for Storing Spent Nuclear Fuel--Are They Needed?" (EMD-79-82, June 27, 1979).

commitments to breeder reactors and others who view plutonium use as a route to nuclear independence or greater supply assurances. Furthermore, nations considered to be potential proliferators may be unwilling to transfer spent fuel to the United States. Thus, accepting limited quantities of foreign spent fuel in the United States is not a panacea to controlling the proliferation risks of spent fuel or plutonium accessibility, but may be a means to help contain the risks, if judiciously done on a case-by-case basis.

CONCLUSIONS

The nuclear fuel supply assurances envisioned in Title I are not much of an incentive to other nations--in the case of additional U.S. enrichment capacity--or have not materialized--in the case of INFA and the other international undertakings.

We found that although DOE was proceeding to construct additional enrichment capacity, it is not now apparent whether such capacity is needed to meet foreign demand, or to further U.S. non-proliferation objectives. DOE believes the additional capacity is justified on an economic basis. However, still at issue are (1) whether the cost savings DOE projects for 1990 and beyond justify the large current expenditures needed for centrifuge construction, given the major budget reductions being proposed by the new administration, and (2) whether alternative actions to allow the delay of investment in the new centrifuge enrichment facility have been fully considered.

With the United States' diminished share of the international enrichment market, the international approaches to providing nuclear fuel supply assurances take on added importance. However, officials at the Departments of Energy and State told us that, presently, there is little interest on the part of most supplier or consumer nations in actively pursuing the concepts envisioned in the proposed INFA or in an internationalization of the nuclear fuel cycle. The IAEA Committee on Assurance of Supply is expected to address multinational nuclear fuel supply assurances, and the U.S. strategy of participating in this committee, rather than pursuing the international initiatives called for in Title I, makes sense for now. We strongly believe in the concept of multinationalism and interdependence among nations with nuclear power programs as a good approach for addressing proliferation concerns. However, this has to be recognized as a long-term goal which can only be approached in an incremental and sequential manner. Full and active participation in the IAEA committee appears to be a realistic first step.

We acquired the perception that the United States is considered a "lukewarm" participant in this IAEA endeavor.

We believe the United States should put its full weight into the IAEA effort. The Committee is scheduled to conclude its efforts in mid-1983 and, if tangible results have not been achieved, the United States could consider establishing a small fuel bank operated under IAEA or some other international auspices to meet supply interruption emergencies. If the international climate is right and the need exists, the experience gained in establishing and operating the small fuel bank could be used to implement a larger international fuel cycle scheme in the late 1980s.

In addition to the fuel assurance mechanisms, the NNPA states that the executive branch should explore the establishment of international spent fuel repositories. While some discussions have taken place concerning a Pacific Basin storage facility, it is likely that much more complicated and time consuming negotiations will take place before even the concept is approved--much less construction started.

A closely related issue concerns proposed international controls over plutonium. Since many nations are reprocessing or planning to reprocess spent fuel, excess stocks of plutonium are expected. To reduce the proliferation risks created by scattered plutonium stockpiles, an international control system over excess plutonium is needed. Such a system does not exist, and partly because of the Carter Administration's policy on reprocessing, the United States was perceived to place less than its full weight behind the proposed international plutonium management and storage regime.

To reduce the proliferation risks of scattered plutonium stockpiles, we believe the United States should strongly support and actively seek the establishment of the proposed international plutonium management and storage regime. It is equally important for the United States to concurrently pursue the establishment of international spent fuel storage repositories for nations that do not desire reprocessing services. U.S. policy needs to recognize that some nations, because of their large commitments to nuclear power and/or other reasons, are going to reprocess, and still others may be undecided. By pursuing both international spent fuel and plutonium storage regimes, the United States will be working toward the establishment of the alternatives necessary to provide the world community with viable options to reprocessing and indigenous plutonium stockpiling.

The Carter Administration's October 1977 offer to accept limited quantities of foreign spent fuel into the United States was intended to provide other nations a credible alternative to reprocessing. However, the lack of follow-through has demonstrated that the offer does not provide other nations a credible alternative.

The absence of an established domestic spent fuel disposition program in the United States, along with logistic and public acceptance difficulties, has impeded implementation of the offer. Given the lack of follow-through and the implementation problems, we believe the merits of continuing the offer need to be reassessed.

RECOMMENDATION TO THE SECRETARIES OF STATE AND ENERGY

The Title I emphasis on supply assurances and international cooperation was intended as an incentive to make overall U.S. non-proliferation policies more palatable and the control provisions of other titles more acceptable. However, the limited progress on the international undertakings envisioned in Title I has hampered the acceptance, implementation, and even the credibility of other U.S. non-proliferation measures. We recommend that the Departments of State and Energy vigorously pursue solutions to nuclear fuel supply assurances, international spent fuel management, and international plutonium management and storage. Active participation in and support of the IAEA committees on these matters would be an important part of that commitment.

RECOMMENDATIONS TO THE SECRETARY OF ENERGY

Given the lack of follow-through and the implementation problems, we recommend that the Secretary of Energy, in conjunction with the Secretary of State, the Director of ACDA, and the Chairman of NRC, assess the merits of continuing the Carter Administration's offer to accept limited quantities of foreign spent fuel into the United States. Such an assessment should consider the domestic implications of implementing the offer.

If the assessment concludes that the offer should be continued, the Secretary of Energy then should determine whether section 303 of the NNPA provides the most appropriate vehicle for accepting limited quantities of foreign spent fuel into the United States, and--if it does not--the Secretary of Energy should develop new proposals to be considered by the Congress. Any proposals in this area should recognize that this is only an interim measure, and that an international solution to spent fuel storage/disposition still needs to be pursued. If the assessment concludes that the offer should not be continued, the Secretary of Energy should then seek the necessary top-level policy approvals to rescind the offer.

RECOMMENDATION TO THE CONGRESS

Although DOE has apparently addressed some of the major concerns over construction of additional enrichment capacity raised in our November 1980 report [1], the growth in foreign enrichment capacity and the failure of projected demand for U.S. enrichment services to materialize indicate that the need for the centrifuge enrichment facility has diminished since the Congress originally authorized additional enrichment capacity in 1975. Additionally, the centrifuge enrichment facility represents a major Federal investment (an estimated total cost of $6.4 billion in 1982 dollars) in a period of intense budget scrutiny and fiscal restraint.

We recommend that when reviewing DOE's budget request for uncommitted increments of centrifuge enrichment capacity, the Congress should determine whether DOE has adequately demonstrated that it fully and objectively considered (1) the option of postponing the current centrifuge construction program and (2) the feasibility of introducing the potentially more efficient and cost-effective advanced enrichment technologies.

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[1] See our report entitled "Evaluation of Selected Features of U.S. Nuclear Non-Proliferation Law and Policy" (EMD-81-9, November 18, 1980).

CHAPTER 4

NO CHANGES NEEDED IN TITLE II, BUT INTERNATIONAL SAFEGUARDS NEED IMPROVEMENTS

Title II reaffirms U.S. support to strengthen IAEA safeguards. Specifically it calls for the United States to contribute financial, technical, informational, and other resources to assist IAEA in effectively implementing safeguards. An intensified U.S. effort to upgrade IAEA safeguards, which actually began as a 1976 presidential pledge, has had some positive results, but U.S. officials concede that the program has not yet had as significant an impact on actual safeguards in the field as had been hoped.

Title II also calls on the United States to work with other nations to establish (1) international procedures to be followed in the event of diversion, theft, or sabotage of materials or equipment, and to recover any nuclear material stolen, lost, or diverted, and (2) general principles and procedures to be followed if a nation violates an obligation regarding the peaceful use of nuclear material, equipment, or technology. In addition, the NNPA states that U.S. policy is to strongly encourage adherence to the NPT.

Some progress has been made in the physical protection of nuclear material and increased NPT adherence. However, there seems to be little interest abroad in developing specific international sanctions.

In our opinion, Title II represents a strong commitment to IAEA and U.S. non-proliferation efforts, and no change seems necessary. However, international nuclear safeguards need improvements.

IAEA SAFEGUARDS AND U.S. INTEREST IN THEM

IAEA safeguards are a cornerstone of the international nuclear non-proliferation efforts and are important to U.S. non-proliferation objectives. The United States relies on the international safeguards system to sound the alarm if nuclear material is diverted. Moreover, it has helped persuade other nations to rely on IAEA safeguards for assurance that others are not developing nuclear explosive devices.

Since IAEA was established, substantial U.S. support has been provided to the IAEA safeguards program. The United States has encouraged IAEA safeguards coverage on all peaceful nuclear activities within a nation--often referred to as full-scope safeguards. The United States also supports adherence to the NPT and the Treaty of Tlatelolco, which require non-nuclear weapon nations to accept full-scope safeguards.

The NNPA makes acceptance of IAEA safeguards on all existing peaceful nuclear activities a condition of U.S. supply under new or revised agreements for cooperation, and for exports under existing agreements. In addition, the United States has tried to extend the application of IAEA safeguards through the Nuclear Suppliers Group and the U.S.-IAEA agreement to place U.S. facilities under international safeguards.

International safeguards are intended to detect, in a timely manner, diversions of significant quantities of nuclear material from peaceful nuclear activities, and to deter such diversions by the risk of early detection. To accomplish this, IAEA depends upon material accountability and containment and surveillance devices.

In recent years, there has been a great increase in the number of facilities subject to safeguards. 1/ IAEA is now responsible for the application of safeguards at new types and sizes of facilities of important concern from a non-proliferation standpoint. In addition, IAEA is now responsible for safeguarding complete nuclear fuel cycles within a nation or close group of nations.

RESULTS OF INTENSIFIED U.S. EFFORT TO UPGRADE IAEA SAFEGUARDS

To help IAEA upgrade its safeguards system, President Ford, in 1976, pledged $1 million of special help annually for 5 years.

1/Today, the vast majority of nuclear facilities and material in non-nuclear weapons nations is subject to IAEA safeguards. However, five nations are operating at least one unsafeguarded facility: India, Israel, South Africa, Egypt, and Spain (although the two latter nations have recently agreed in principle to accept safeguards on all of their nuclear facilities). In addition, Pakistan is currently developing reprocessing and enrichment facilities which apparently will not be subject to IAEA safeguards. Of the nuclear weapon nations, the United Kingdom, France, and the United States have agreed to place their nuclear facilities--except those of direct national security significance--under IAEA safeguards. The two other nuclear nations--People's Republic of China and the Soviet Union--do not have their facilities under IAEA safeguards.

As a result, DOE, State, ACDA, and NRC initiated a program of coordinated actions to upgrade and support IAEA safeguards, including the Program of Technical Assistance to Safeguards (POTAS).

For many years, DOE, ACDA, and NRC have had individual agency programs designed to support international safeguards. The roles and responsibilities of these agencies cover a broad range of interrelated safeguards activities such as policy, planning, technical consultation, equipment, and training to increase the effectiveness of IAEA safeguards. Nevertheless, U.S. officials have stressed that POTAS has become the main vehicle for providing technical resources, funds, and other support to upgrade IAEA safeguards as envisioned by the NNPA.

The United States has provided almost $19 million through POTAS to upgrade IAEA safeguards from fiscal year 1976 through fiscal year 1980, and about $4 million is planned for fiscal year 1981. This was to be a short-term program, intended to provide quick reaction to urgent needs identified by IAEA to improve safeguards where normal IAEA budget channels could not respond. Technical assistance provided under POTAS was meant to complement IAEA's normal procedures for fulfilling its safeguards needs.

All POTAS tasks are carried out in response to requests by the IAEA Director General. After a task is approved and funded by the United States, the U.S. contractor is to prepare a detailed work plan for review and approval by IAEA staff responsible for oversight of the task. These procedures are intended to ensure that tasks are responsive to IAEA needs.

As of December 1980, POTAS had completed 190 of the 270 tasks undertaken. These tasks have been directed at providing (1) upgraded measurement techniques, (2) training for inspectors, (3) system studies to improve safeguards techniques for existing and future nuclear facilities, (4) support to information processing systems and field operations, and (5) improved containment and surveillance techniques.

Positive results

The most noteworthy accomplishments have been improved inspector training and better information processing systems. Technical experts, who supplement IAEA's staff, also have provided valuable assistance in equipment technology and the development of systems studies designed to improve safeguards techniques. IAEA's ability to verify some nuclear materials quantitatively was improved by the development of safeguards instruments.

Many urgent needs not met

Despite the progress made, many of the urgent needs identified by IAEA have not yet been met. For example, most of the equipment resulting from POTAS is still in the development and testing stages and is not being used routinely on inspections. Inspectors complain that the system studies seem to be aimed at longer-term problems and not at solving current ones.

Safeguards equipment must often be developed through an evolutionary process. The POTAS program has utilized the expertise of U.S. laboratories and industrial firms that provide a specialized or unique service where commercially available equipment does not exist. Equipment tasks are, to a large degree, research projects which do not produce equipment for immediate use. According to IAEA personnel, equipment prototypes provided under POTAS often need modifications to make them better suited for use in the field.

At the time of our review, few pieces of equipment provided by POTAS were being routinely used, even though a considerable amount had already been spent on equipment development. As of June 1980, POTAS had provided approximately $1.7 million in equipment to IAEA, but about $3.1 million had been spent on equipment development tasks under POTAS.

Systems studies analyze problems to provide alternatives for improved safeguards procedures and operations. About 45 system studies have been undertaken. However, such studies may not focus on problems of immediate concern to IAEA. Some IAEA officials believe a number of system study tasks have failed because (1) they have not provided timely or practical solutions to current problems, (2) the studies have been too broad in scope, or (3) they use national and not international safeguards concepts. Overall, some IAEA officials believe that, although systems studies are important because they provide an alternative approach to some problems encountered in safeguard implementation, a number have no immediate impact.

IAEA experiencing problems in absorbing results of POTAS

It appears that IAEA does not have the ability to absorb the results of some projects. IAEA has experienced difficulty in getting the results to the inspectors for use in the field. In particular, IAEA has lacked adequate financial and personnel resources to use the products from all the tasks requested.

DOE officials advise us that up to 19 cost-free experts have been provided at any one time and these experts, working under contracts with IAEA, supplement IAEA resources in bringing the products of POTAS into use. Moreover, a new POTAS project was approved in 1980 to help get the results of some projects beyond the IAEA testing stage and into operational use. This project provides funds for IAEA and U.S. contractors to perform field tests and evaluations at facilities outside the United States.

IAEA is experiencing problems with inadequate financial and personnel resources, and these problems may be intensified as it is called upon to use more sophisticated equipment and procedures. U.S. officials also have stated that IAEA may not be able to afford to buy items developed under POTAS in the needed quantities. As an example, they cite the need for 40 TV surveillance units which cost $50,000 each.

IAEA more dependent on U.S. support

POTAS was established to provide, for a limited time, resources to IAEA when its own resources were inadequate. However, the increased U.S. support has made IAEA much more dependent on continued U.S. support.

IAEA relies heavily on the U.S. program to support its safeguards effort. The growing IAEA dependence on the United States can be readily seen in the supply of equipment. Under the POTAS program, new techniques and prototype equipment are being developed and tested. Now IAEA looks to the United States for assistance in implementing these new developments. This means providing pieces of equipment for routine use in the field. If sophisticated safeguards equipment is provided and adequate IAEA financial resources are not set aside for replacement and maintenance costs, then IAEA dependence on U.S. support may increase further.

DOE officials advised us that one U.S. expert is currently working with IAEA to help plan equipment budgets for future years.

IMPROVEMENTS NEEDED IN IAEA SAFEGUARDS

Substantial improvements are required if IAEA is to fulfill its increasing safeguards responsibilities. The number of facilities and the amount of nuclear material under safeguards has increased rapidly in recent years. Many of the nuclear facilities now subject to safeguards are larger and more complex than those originally under safeguards. To meet its responsibilities, IAEA needs more technical, political, and financial support from its members.

The extent to which present safeguards are effective is largely a matter of judgment. It would be difficult to prove if or to what degree safeguards have achieved their desired effect. Nevertheless, it is clear that the credibility of international safeguards as a deterrent to proliferation depends upon the probability of prompt detection. In many cases this probability of detection needs to be increased.

IAEA has not detected any discrepancy which would indicate the diversion of a significant amount of safeguarded nuclear material, and it concludes that all such material remains in peaceful nuclear activities or is otherwise adequately accounted for. However, the degree of confidence that can be associated with current IAEA safeguards depends on such things as the amount, scope, and nature of the inspection effort.

International safeguards have reached different degrees of development for different types of facilities; in part, because IAEA experience in safeguarding certain types is considerably greater than for others. For example, IAEA has experience in safeguarding thermal power reactors (particularly light water reactors), but limited experience in safeguarding fast breeder reactors. Also IAEA has experience in safeguarding certain bulk handling facilities--conversion and fabrication plants--but limited experience in applying safeguards to reprocessing and enrichment plants.

Several factors hinder IAEA in applying safeguards including, (1) a limited number of inspectors, (2) a lack of suitable techniques and equipment, (3) inadequate nuclear material accounting practices by some nations, and (4) political constraints. Moreover, IAEA is experiencing financial constraints in performing its increasing safeguards responsibilities. It seems reasonable to conclude that IAEA's safeguards effectiveness has been adversely influenced by these problems. 1/

--IAEA has an obligation under its safeguards agreements to conduct inspections. To fulfill its safeguards responsibilities, IAEA must have the necessary manpower to inspect, verify, and insure that a diversion of peaceful nuclear material has not taken place. However, the number of IAEA inspectors has not kept pace with its rapidly growing safeguards responsibilities.

--The lack of suitable safeguards equipment is a primary reason why quantitative verifications

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1/The impact of these problems is discussed in our classified report entitled "International Nuclear Safeguards Need Further Improvement" (C-ID-81-4, February 13, 1981).

in many cases cannot be adequately made. 1/ A substantial amount of material is in a form that is currently unmeasurable. While improvements have been made in recent years in the equipment to verify nuclear materials quantitatively, U.S. officials recently concluded that more reliable and suitable measurement equipment was needed by inspectors. In addition, containment and surveillance systems are not reliable for assuring the integrity of material control and accountability systems.

--A nation is obligated to provide IAEA with accounting records and reports for all its nuclear material subject to safeguards. IAEA officials have repeatedly indicated a need for some nations to improve the quality of the nuclear material accountability information. To help alleviate these difficulties, the United States, in line with Title II of the NNPA, has provided training to officials of other nations in implementing national systems for the accounting and control of nuclear material.

--Effective safeguards depend in large measure on the intent and cooperation of the host nation. In some cases, IAEA has had some difficulty in obtaining such cooperation. An example of this is the conditions established by some nations in consenting to the designation of inspectors. While it is the right of every nation to accept or reject a proposed inspector, there is the serious and growing practice of rejecting whole categories of proposed inspectors on political, linguistic, or nationalistic grounds. According to IAEA's Director General, this practice has unfortunately led to retaliatory discrimination, distortions of the recruiting pattern, and effective deployment of inspectors in the field.

--The IAEA Statute provides that the cost of safeguards is to be apportioned among all member nations. The reason for this was that the imposition of international controls is in the interest of the world community. However, with the advent of the NPT, many members, particularly developing nations, were concerned that expected increases in safeguards expenses would have the effect of increasing assessed contributions and/or diminishing other IAEA programs. Because of mounting costs of safeguards

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1/See our report entitled "Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons" (EMD-80-38, March 18, 1980).

> and the controversy as to how these costs were to be met, a complex formula was developed in 1971. Since then, more than two-thirds of the member nations have been insulated from an increased financial responsibility for implementing new safeguards. (See app. V.) Many member nations maintain that the financial resources of IAEA should be used primarily for technical assistance to less developed nations and to promote peaceful uses of nuclear energy. Thus, while many nations, in theory, fully support international safeguards, many are less supportive financially. The United States, in line with Title II of the NNPA, has encouraged other member nations to render special assistance to IAEA in the technical aspects of safeguards. Several are now providing technical assistance to IAEA. These special assistance programs of member nations represent a commitment to improving safeguards, and further efforts should be encouraged. Nevertheless, such programs should not lead to the dilution of the basic premise that the cost of IAEA safeguards are to be apportioned among all member nations.

In July 1975, we reported that political, financial, technical, and material accountability problems were being encountered in applying international safeguards. 1/ Since that time, efforts have been made to address some of these issues, but the magnitude of IAEA's safeguards responsibilities has outpaced these efforts and IAEA continues to encounter the same basic problems.

LACK OF CONSENSUS ON COMMON INTERNATIONAL SANCTIONS

Title II calls on the United States to seek to negotiate with other nations and groups of nations to adopt general principles and procedures, including common international sanctions to be followed in the event that a nation violates (1) any material obligation regarding the peaceful use of nuclear materials and equipment or technology, or (2) the principles of the NPT, including detonation of a nuclear device by a non-nuclear weapon nation.

While the NNPA was being formulated, U.S. officials attempted to negotiate procedures for common sanctions. Since discussions were underway with the Nuclear Suppliers Group, the executive

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1/See our report entitled "Role of the International Atomic Energy Agency in Safeguarding Nuclear Material" (ID-75-65, July 3, 1975).

branch used the opportunity to discuss sanctions as called for in the NNPA. The Group's final document, published in February 1978, states:

> "In the event one or more suppliers believe there has been a violation of supplier/recipient understanding. . . particularly in the case of an explosion of a nuclear device, or illegal termination or violation of IAEA safeguards by a recipient, suppliers should consult promptly through diplomatic channels in order to determine and assess the reality and extent of the alleged violation." (Paragraph 14, subparagraph (c)).

Most nations were generally not willing to agree to abstract sanctions because it required a commitment to take a specific, and presumably serious, action against other governments under circumstances which cannot be adequately defined. Most suppliers indicated that they would rather approach the issue of sanctions by consultation and on a case-by-case basis. The effectiveness of sanctions in terminating nuclear cooperation may or may not be an effective deterrent, but other nations believe that without a certain amount of flexibility the presumptive posture of sanctions could make the cost and risk of taking action too high.

Because U.S. officials apparently found it was difficult to get members of the Nuclear Suppliers Group to agree in abstract to specific sanctions, the State Department has done little more to establish common sanctions since the passage of the NNPA. Nevertheless, State Department officials advised us that they had already sought such common sanctions, and they believed that the NNPA requirements had been satisfied.

Obtaining a broad multinational consensus for future automatic sanctions, to be applied if a nation were to engage in proscribed activities, would require the world community to reach agreement in advance on the following questions. What is a violation? How it would be verified? What sanctions would be appropriate in a given set of circumstances?

Some international sanctions already exist. For example, the IAEA Statute which calls for the suspension or termination of IAEA membership rights and privileges, and the return of any agency-provided nuclear material, equipment and/or device, if IAEA safeguards inspectors detect a diversion of nuclear materials. Title II is an attempt to enhance such sanctions in a negotiated set of guidelines to be followed by the world community. However, the executive branch feels that, at least for the present, the adoption of common sanctions cannot be achieved.

EFFORTS TO IMPROVE PHYSICAL PROTECTION ARE GETTING RESULTS

Title II directs the U.S. Government to negotiate international procedures to be followed in the event of diversion, theft, or sabotage of nuclear materials that have been lost or stolen, or obtained or used by a nation or by any person or group in violation of NPT principles.

Since 1977 the United States has been advocating the negotiation of an international convention on the physical protection of nuclear material. Negotiations for the convention were completed in October 1979. The Convention, which was opened for signature on March 3, 1980, requires nations to take appropriate steps to protect nuclear material used for peaceful purposes during international transport, and not to authorize the import or export of such material unless assured that it will be protected during transport at prescribed levels of physical protection. It also establishes a framework for international cooperation to recover lost or stolen material, and a system for prosecution or extradition for serious offenses.

U.S. officials point out that the Convention successfully completed a United States initiative to establish a regime of international cooperation to improve the physical protection of nuclear material, and that this achievement constitutes a major step in fulfilling the goals expressed in Title II.

In accordance with Title II, the U.S. Government, in cooperation with IAEA, has also been conducting international training courses on the physical protection of nuclear material and equipment at U.S. national laboratories.

REASONABLE APPROACH TO PROMOTE NPT ADHERENCE BUT MIXED RESULTS

One major policy objective of the NNPA is to strongly encourage nations which are not party to the NPT to become parties at the earliest possible date. The United States has taken a reasonable approach in promoting adherence and there has been some progress. U.S. officials believe that the NNPA has been helpful in some respects, but also recognize that a number of NPT parties have criticized the NNPA. These criticisms include allegations that the NNPA is a unilateral effort and adds another layer of controls to those required by the NPT. Some nations have asserted that aspects of the NNPA could in fact weaken or subvert the NPT. In general, it appears that some aspects of the NNPA may have increased tensions within the NPT community regarding peaceful nuclear cooperation.

Through diplomatic initiatives and various incentives, the United States has been encouraging nations to sign the NPT; however, the approaches available to the United States are limited. In fact, the United States is not actively promoting the NPT in some nations because of their strongly negative stance toward the NPT or because U.S. influence is minimal or concentrated on other high-priority interests.

Since the enactment of the NNPA, the United States has approached about 30 nations on the matter of becoming party to the NPT. It has also explored the prospects of approaching several others, but decided that the current diplomatic climate was not conducive to NPT discussions. 1/

The United States avoids assuming a high profile in encouraging NPT adherence because it believes such a profile would be counterproductive and because the NPT is an international, not a national, effort. Several factors are considered in determining whether a particular non-party nation is approached by the United States about NPT adherence, including (1) the actual and potential nuclear capabilities of the nation, (2) the priorities of U.S. interests in the nation and/or region, and (3) the degree of U.S. influence with the nation on this topic.

Nations with little or no nuclear capability or potential are not ignored, as adherence by any additional nations serves to further isolate the non-party nations. However, some key nations with substantial nuclear capability are not currently being approached because of longstanding and continuing opposition to the NPT and/or a lack of U.S. influence. India, Brazil, and Argentina, for example, have taken a strong stance against the NPT. As a result, the United States believes that efforts to persuade them to adhere would be fruitless and therefore is not attempting to do so. In addition, changes in the international political environment can force a reordering of diplomatic objectives and interrupt or postpone NPT promotion efforts.

In addition to its diplomatic efforts, the United States offers incentives which attempt to address the concerns of many non-nuclear weapon nations and encourage NPT adherence. These include but are not limited to

--technical assistance through IAEA to non-nuclear weapon NPT nations,

--the ratification of a U.S.-IAEA agreement to place U.S. peaceful nuclear facilities under IAEA safeguards,

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1/See our report entitled "Evaluation of U.S. Efforts to Promote Nuclear Non-Proliferation Treaty" (ID-80-41, July 31, 1980).

--indications that NPT adherence will facilitate entering into a nuclear cooperation agreement with the United States,

--new criteria and procedures for licensing certain exports to nations with good non-proliferation credentials, and

--lifting ceilings on power reactor fuel supplies where they are specified in U.S. agreements for cooperation with NPT parties.

Since the passage of the NNPA, 12 nations have become party to the NPT. They are Liechtenstein, the Congo Republic, Tuvalu, Sri Lanka, South Yemen, Indonesia, Bangladesh, Cape Verde, Barbados, Turkey, Saint Lucia, and Egypt. These nations bring the number of nations adhering to the NPT to 115.

Among those who have yet to ratify the NPT are the People's Republic of China, Spain, India, Israel, Pakistan, Brazil, Argentina, South Africa, and France. France, however, has indicated that it would act as if it were an NPT party.

In August-September 1980, a conference to review the operations of the NPT was held. In the statements made during the Conference, there was a general reaffirmation of the NPT and its objectives, and many nations called on non-parties to adhere to the NPT. However, the Conference failed to achieve consensus on a final declaration, and U.S. officials believe this could very well impede efforts to encourage other nations to adhere to the NPT.

Although the most divisive issues at the Conference involved arms control, many nations expressed varying degrees of unhappiness about the present state of nuclear cooperation. Of particular concern were post-1975 changes in nuclear export requirements imposed by supplier nations, such as the NNPA and the Nuclear Suppliers Group guidelines. The NNPA was the subject of both explicit and implicit criticism.

Some executive branch officials believe that the NNPA has, in some respects, helped promote adherence but concede that it may have also increased the already existing tensions within the NPT community.

CONCLUSIONS

Title II calls for U.S. efforts to strengthen IAEA safeguards and to negotiate common international sanctions and physical protection measures. It represents a strong commitment to IAEA and non-proliferation efforts in general, and, in our opinion, no change seems necessary.

It seems reasonable to conclude that safeguards effectiveness has been adversely influenced by the problems IAEA has been experiencing. The United States and others have been working to strengthen IAEA safeguards. Despite these efforts, many urgent needs have not yet been met and further improvements are needed. U.S. and IAEA officials believe POTAS is helping to strengthen safeguards and should be continued, but U.S. officials concede that the program has not yet had as significant an impact on safeguards implementation as had been hoped.

Continued support to improve safeguards seems appropriate. The cost of safeguards is low compared to the costs of world insecurity and increased military weaponry. However, care must be exercised so that IAEA does not become too dependent on the United States for its support. To retain its character as an international organization, IAEA must receive technical, political, and financial support from all its members.

Some limited international sanctions already exist. Enhancing such sanctions is worth pursuing as a long-term objective, but U.S. officials found it difficult to get others to agree to further sanctions in abstract terms, and they believe such sanctions are not currently achievable. Nevertheless, there appears to be no need to delete the call for common sanctions from the U.S. strategy. Rather, it should remain as part of the NNPA's long-term goals.

Although 2 to 3 years will probably elapse before enough nations ratify the Convention for Physical Protection of Nuclear Material to bring it into force, we believe it is a positive step in the overall effort to control the use of nuclear materials.

A major policy objective of the NNPA is to strongly encourage nations to become NPT parties, and the United States has been active in this regard. We believe the approach taken by the United States in promoting NPT adherence is reasonable.

RECOMMENDATIONS

We recommend that the Secretary of State meet with other world leaders and IAEA officials to address the problems impeding the effective application of international safeguards and to develop a multinational plan to overcome these problems. Renewed consideration should be given to how international safeguards should be financed, staffed, and provided with the necessary technical support.

We recommend that the Secretary of State, in consultation with the Secretary of Energy, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission, reconsider the direction and scope of POTAS, in light of (1) the original intent of the the program, (2) the provisions of the Nuclear Non-Proliferation Act of 1978, (3) the increasing dependence of IAEA on this U.S. program, and (4) the need to retain the international character of the IAEA safeguards system.

CHAPTER 5

NUMEROUS CHANGES ARE NEEDED TO MAKE NUCLEAR EXPORT REGULATORY CONTROLS AND PROCEDURES OF TITLE III WORK BETTER

In amending the Atomic Energy Act of 1954, Title III established new regulatory controls over U.S. nuclear exports and mandated new complex procedures for administering the controls. Because Title III sets forth revised U.S. controls regarding nuclear trade, its predictable implementation is of great concern to U.S. nuclear trading partners and the U.S. nuclear export industry.

Five executive branch agencies (the Departments of Energy, Commerce, State and Defense and ACDA), plus the independent NRC, are responsible for reviewing the proliferation risks of U.S. nuclear exports. These reviews are conducted before NRC grants export licenses for nuclear materials and equipment and before DOE (1) enters into certain cooperative arrangements with any nation or private party regarding the supply, use, or retransfer of the exports, referred to in the NNPA as "subsequent arrangements," and (2) grants U.S. firms and individuals authorization to export nuclear technology or conduct certain nuclear-related activities abroad. Appendix VI provides an overview of the agencies' roles and responsibilities in the control process.

Although there have been improvements in some areas, numerous changes in the process are still needed to make the regulatory controls and procedures of Title III work better. The changes and clarifications we propose in this chapter are designed to increase efficient administration of nuclear export controls while maintaining compliance with the major non-proliferation assurances required by Title III. Further, several of the proposed changes, if adopted, would help meet the legitimate needs of U.S. nuclear trading partners for supply assurances and the U.S. nuclear industry needs for timely and predictable Government decisions.

Much of the information in this chapter summarizes and updates, as required, our audit findings reported to the Congress in November 1980. 1/ In several instances, our earlier conclusions and recommendations are repeated because action on them has not yet been taken and we believe they are still valid.

1/See our report entitled "Evaluation of Selected Features of U.S. Nuclear Non-Proliferation Law and Policy" (EMD-81-9, November 18, 1980, Chapters 5 and 6).

STEADY IMPROVEMENT IN EXPORT LICENSING PROCESSING TIME FRAMES

The NNPA as a matter of policy (sec. 2(b)) commits the United States to be a reliable supplier of nuclear materials and equipment to nations which adhere to effective nonproliferation policies. Title III established, among other things, statutory procedures that provide specific time limits for Government reviews of export licenses (sec. 304) and directed the executive branch and NRC to adopt regulatory procedures to facilitate the timely processing of applications for export licenses. The Congress expected that the agencies would make a final decision within 120 days, except for rare circumstances.

In our November 1980 report we discussed agency difficulties in complying with the statutory time limits for a 2-year period following passage of the NNPA (March 1978 through February 1980). Briefly, we found for that 2-year period:

--About 85 percent of the licenses issued were considered minor exports and were issued in a timely manner (i.e., less than 120 days). The vast majority of major exports (e.g., nuclear reactors, highly enriched uranium), however, were not issued in a timely manner, although there had been improvement since the first year.

--Agency implementation of time limits for Government reviews of license applications and the procedures to be followed when the time limits are exceeded had done little to shorten the licensing process. For example, as of February 29, 1980, 63 of the 194 (32 percent) license applications pending Government approval were under review for a year or more.

--Failure of recipients to comply with U.S. export conditions, certain nation-specific problems, or unresolved questions by one or more Government agencies about the proposed export meeting U.S. export conditions caused most of the delays.

--Greater use of streamlined procedures were adopted to expedite the licensing process (e.g., licensing by the NRC staff of more categories of exports without Commissioner review or referral to executive branch agencies, using more precedents in making licensing decisions, increasing and expanding categories of exports not subject to Government case-by-case review or specific approval, and allowing the licensing of multiple nuclear fuel reloads for power reactors to certain nations). NNPA implementation problems initially hampered the agencies from adopting streamlined procedures, but most of those problems have been resolved.

There has been a steady improvement in the number of major exports being licensed within the NNPA 120-day time limit. The table on the following page presents updated information on the Government's experience in licensing major nuclear exports for the first 9 months of the third year (March through November 1980). During this third year period, 33 of 74 (45 percent) of the major exports were licensed within 120 days, compared to 28 of 86 (32.5 percent) for the second year, and only 3 of 88 (3.4 percent) for the first year. Highly enriched research reactor fuel, initial core loads of low enriched power reactor fuel, and reactor exports continue to present Government agencies the greatest difficulties in meeting the 120-day time limit. These exports represent 13 of the 17 (76.5 percent) taking longer than a year to issue, with 9 (53 percent) being highly enriched research reactor fuel.

The trend within NRC and the executive branch agencies is toward continued streamlining of the export licensing process. In addition to the adoption of the streamlined procedures noted in our November 1980 report, supply ceilings under existing U.S. agreements for cooperation were lifted on low-enriched uranium exports to NPT nations by Public Law 96-280, signed by the President on June 18, 1980. According to the State Department this action supports the U.S. policy of encouraging NPT adherence and providing benefits to NPT nations. Also, in commenting on our report, NRC noted that recently the executive branch approved an NRC-initiated proposal to significantly expand general export licenses for nuclear material and equipment to NPT nations. We strongly endorse this trend toward a more focused export licensing process where the non-proliferation credentials of the recipient nation and the potential sensitivity of the export dictate whether an export license application is handled on a streamlined basis or receive detailed case-by-case scrutiny.

WAYS TO IMPROVE THE EXPORT LICENSING PROCESS

Although there is greater use of the streamlined procedures, more can and should be done to make Government non-proliferation reviews of export license applications more timely and predictable. We believe the following actions to improve the export licensing process should be taken by the executive branch, NRC, and/or the Congress, as appropriate.

Major Exports of Nuclear Material and Equipment (note a)
March 1 to November 30, 1980

Type of Export	Government time frames for export license issuance						
	Less than 60 days	60 to 120 days	120 to 240 days	240 to 366 days	1 to 2 years	Over 2 years	Totals
Special nuclear material (note b)							
1. Low enriched uranium power reactor fuel (2 to 4%)							
a. Initial core	-	-	-	1	1	1	3
b. Reload	8	15	10	-	1	-	34
2. Medium enriched uranium research reactor fuel (8 to 46%) (note c)	-	3	4	1	-	1	9
3. High enriched uranium research reactor fuel (over 90%)	-	-	1	1	6	3	11
4. Plutonium (note d)	-	-	1	-	-	-	1
Utilization facilities							
1. Power reactors	-	-	-	-	1	1	2
2. Research reactors	-	-	-	-	-	-	-
Source material							
1. Natural uranium	-	3	-	1	1	-	5
2. Depleted uranium	3	-	1	-	-	-	4
Other exports							
1. Reactor components	-	-	1	1	1	-	3
2. Heavy water	-	-	1	1	-	-	2
Totals	11	21	19	6	11	6	74

a/Exports under NRC licensing jurisdiction. NRC defines major exports as (1) one effective kilogram or more of special nuclear material, (2) utilization facilities (power/research reactors), (3) 10,000 kilograms or more of source material, (4) 1,000 kilograms or more of heavy water or nuclear grade graphite, and (5) any other export determined by NRC to warrant special consideration or the review of NRC Commissioners. The table does not reflect two exports of reload power reactor fuel and five exports of reactor components to India authorized by the President on September 27, 1980.

b/The enrichment levels noted reflect the actual range of enrichment in each category.

c/DOE was the licensee for four of these exports; all destined for Western Europe as part of research and development program to reduce the enrichment levels of research reactor fuel.

d/DOE was also the licensee for this export; destined for the United Kingdom as part of a safety test program.

Accept generic foreign government assurances for repetitive exports

Exports of certain kinds of nuclear material and equipment, such as low enriched fuel of power reactors, require assurances from the recipient government that the proposed export will be subject to the agreement for cooperation with the United States and that the proposed recipient is authorized to receive the export. DOE is required to request such assurances within five working days, on a case-by-case basis, after receipt of an export application. The executive branch and NRC consider a license application as incomplete until the recipient government provides this written assurance. According to the State Department, this "assurance letter" is a long-standing executive branch requirement for exports under U.S. agreements for cooperation and without such assurance, the executive branch cannot by law provide favorable recommendations to the NRC on the proposed export.

Long licensing delays frequently occur for exports of a repetitive nature due to delays in receiving these assurance letters. For example, during calendar year 1979 the executive branch had delayed forwarding to NRC for over 60 days, at least 25 export applications for routine reloads of low enriched nuclear fuel while awaiting receipt of the assurance letter. Twenty-one (84 percent) of these applications were for routine exports to Japan.

Generic recipient government assurances are allowed for replacement components of nuclear reactors to many nations. Consequently, export licenses have been issued in weeks rather than months. We believe that by accepting generic assurances for other exports of a repetitive nature, such as routine nuclear fuel reloads, to replace the requirement for a case-by-case assurance letter would help make the export licensing process more timely. 1/

We believe the export licensing procedures should be revised to allow generic recipient government assurances for repetitive exports. According to NRC and executive branch officials, the proposal could be implemented by revising executive branch regulatory procedures.

Revise licensing delay notification requirements

Management responsibility for some export applications frequently changes during the licensing process. Since six

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1/In commenting on our report, the State Department noted that foreign governments may not wish to provide such generic assurances for special nuclear material.

Federal agencies are involved at various times, applicants do not always know the status of their applications. Under present procedures, the Government is not required to provide the applicant with written reasons for licensing delays or inaction until NRC has had the application under review for 60 days after receipt of a favorable executive branch recommendation.

Many U.S. exporters have noted problems in finding out the reasons for licensing delays or inaction and that their image as a reliable supplier is jeopardized because they cannot assure buyers that shipping schedules or other contractual commitments can be met. Several exporters provided us with documents to show that buyers are requiring a specific time frame for the issuance of an export license in commercial contracts or bid specifications.

The vast majority of delays or inaction occur during the executive branch review and not during the NRC review as shown below in our analysis of Government review time frames for 173 export license applications.

Export License Applications Under Government Review on November 30, 1980

Time frames	Under executive branch review or in the process of being forwarded to NRC (note a)		Under NRC review or in the process of being issued (note b)		Special cases		Total licenses pending	
Less than 60 days	34		9		9		52	
60 to 120 days	12		5		5		22	
120 to 240 days	23		-		-		23	
240 to 366 days	16	99	-	9	2	13	18	121
1 to 2 years	30		2		5		37	
Over 2 years	18		2		1		21	
Totals	133		18		22		173	

a/In commenting on our report, the State Department noted that this category of export license applications includes those which are incomplete due to the lack of required assurances from the proposed recipient government, or which fail for any other reason to meet statutory conditions for exports. Thus, according to the State Department, completion of executive branch review on many such applications is not realistically foreseeable without change in relevant circumstances extraneous to the Government.

b/This column also accounts for executive branch review time; thus, it should not be interpreted to mean that NRC alone has had these license applications under review for the noted time frames.

Under present procedures NRC was clearly required to provide applicants with written reasons for delays or inaction for only 9 (7.4 percent) of the 121 applications under Government review for more than 60 days. Whether NRC was also required to do so for some of the 22 special cases is not clear because NRC status reports do not identify if the cases are solely under NRC review.

A better way to account for licensing delays and inaction would be to reverse the NNPA requirements for Government notifications when executive branch and NRC review time limits are exceeded. Presently, the NNPA requires:

--The State Department to provide NRC an executive branch decision within 60 days. If this time limit is not met, the State Department is authorized to take additional time, upon finding that it would be in the "national interest" to do so. However, two congressional committees 1/ must be notified when such authorizations are granted.

--NRC, after receiving a favorable executive branch recommendation, has 60 days to decide whether to issue an export license. If this time limit is not met, NRC must "inform the applicant in writing of the reason for delay and provide follow-up reports as appropriate."

Reversing the notification requirements would provide the applicant reasons for delays over 60 days by the executive branch, and the Congress reasons for delays over 60 days by NRC. If this practice were in effect for the above applications, the applicants would have been notified at least 99 times rather than 9, and the Congress notified 9 rather than 99 times. Because most delays and inactions occur while an export license application is under executive branch review, we believe that State Department notification to the applicant would be of greater value than NRC notifications. Further, because of foreign policy concerns about NRC's role in the export licensing process, we believe that NRC notification to the Congress would be of greater value for oversight purposes than Department of State notifications. (See sections 5(a) and (c)(1) of our draft bill in app. VIII.)

Provide expedited review procedures for exports under new or renegotiated agreements for cooperation

The requirements for new or renegotiated agreements for cooperation, discussed in chapter 6, incorporate to a large

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1/The Senate Committee on Foreign Relations and the House Committee on Foreign Affairs.

extent the statutory criteria (sections 305 and 306) governing procedures for issuing licenses. Neither the NNPA nor NRC regulations specifically provide for expedited or streamlined review procedures for the issuance of export licenses under new or renegotiated agreements. NRC believes, however, that existing NRC regulations are flexible enough to provide an adequate basis for such expedited reviews.

Because of doubts about the predictability and reliability of the United States as a nuclear supplier and foreign reluctance to renegotiate existing agreements, we believe it would be useful if the Congress amended the NNPA to clearly state that U.S. policy is to adopt expedited licensing procedures for exports under new or renegotiated agreements. Such expedited procedures could provide long-term licensing for exports of low enriched uranium fuel and reactor replacement parts, conditioned upon the recipient nations continued adherence to the agreement's requirements. In our opinion, such an amendment would further U.S. commitments to being a reliable supplier while possibly providing an incentive for some nations to conclude renegotiations of their agreements. (See section 2 of our draft bill in app. VIII.)

Provide limited authority for export licensing criteria exemptions

As discussed in appendix VI, NRC as a minimum must find that the NNPA statutory criteria are met before it can issue an export license. Further, new or renegotiated agreements for cooperation must incorporate similar criteria. The NNPA gives the President, subject to congressional disapproval, authority to exempt any specific agreement for cooperation from a particular agreement requirement, "...if he determines that inclusion of any such requirement would be seriously prejudicial to the achievement of the United States non-proliferation objectives or otherwise jeopardize the common defense and security."

A difficulty could arise if the President exempted (and the Congress did not disapprove his decision) an agreement from a requirement that also is or incorporates export licensing criteria. In such a circumstance, it might not be possible for NRC to license exports even though the Congress did not object to the exemption because NRC cannot grant an export license under the NNPA until it determines that the licensing criteria are met.

We believe the Congress should resolve this difficulty by amending section 401 of the NNPA to provide an exemption from export licensing criteria to the extent an exemption has been obtained from the requirements for new or renegotiated agreements for cooperation. Such an amendment may also provide the executive branch greater flexibility (but always subject to congressional disapproval) to conclude new or renegotiated agreements for cooperation. (See section 7 of our draft bill in app. VIII.)

Transfer DOE's authority to approve all Government distributions (exports) of nuclear materials to NRC

Before the NNPA, DOE and its predecessor agencies had the authority to export all categories of nuclear materials from Government sources without export licenses. Such exports are referred to in the Atomic Energy Act as "distributions." The NNPA limits this authority (sec. 301). DOE now must obtain export licenses from NRC for any Government distributions of source and special nuclear materials which exceed certain small quantity limits, 1/ and other types of distributions must be reviewed and approved as a "subsequent arrangement" (sec. 303).

However, NRC's and DOE's jurisdiction over other categories of Government distributions of nuclear materials is not as clear-cut. Regarding Government distributions of byproduct material, one section of the Atomic Energy Act, as amended by the NNPA (sec. 111a) states that NRC is authorized to license "* * *byproduct material by the Department of Energy* * *in accordance with the same procedures established by law for the export licensing of such material by any person." However, it also states that "* * *nothing in this section shall require the licensing of the distribution of byproduct material by the Department of Energy* * *." According to NRC staff, a reasonable interpretation of these two provisions is that the NNPA gives NRC explicit authority to license Government distributions of byproduct material, only if DOE determines that this would be appropriate. DOE has not made such a determination. Consequently, DOE has approved Government distributions of byproduct material without an NRC-approved export license since passage of the NNPA.

Moreover, another category where NRC's and DOE's jurisdiction is not clear-cut involves Government distributions of certain special reactor materials. The NNPA gave NRC licensing authority over "* * * items or substances (which) are especially relevant from the standpoint of export control because of their significance for nuclear explosive purposes" (sec. 309). In regulations implementing the NNPA, NRC defined these "items or substances," as heavy water and nuclear grade graphite. However, neither the NNPA, nor NRC's implementing regulations, clearly provide for NRC jurisdiction over Government distributions of these special reactor materials. Nevertheless, DOE and NRC officials told us that the current practice is for DOE to obtain NRC licenses for these types of Government distributions.

1/The quantity limit for source material is three metric tons a year, and for special nuclear material is 500 grams a year of uranium-233, uranium-235, or plutonium.

Also, inconsistent regulatory procedures govern approval of private exports and Government distributions of nuclear materials. For example, under NRC rules, a private firm can export up to 100 kilograms a year of uranium or thorium to any one nation without undergoing any Government review. Under executive branch rules, all Government exports must be reviewed as a subsequent arrangement and notice of the export must be published in the Federal Register before being exported.

Additionally, responsibilities in DOE for reviewing and approving Government distributions are now fragmented between two offices The Office of Nuclear Affairs is responsible for administrative details, such as coordinating interagency review and maintaining records of approvals, while the Office of International Security Affairs is responsible for determining whether the distribution would be "inimical to the common defense and security."

We believe authority to approve the export of all nuclear materials should be transferred to NRC. For export control purposes, there does not appear to be any good reason for maintaining different regulatory procedures governing private and Government exports of nuclear materials. Further, we believe it would be more efficient, and provide the Congress and the public greater accountability, if the administration of all regulatory procedures governing nuclear material exports, whether from private or Government sources, were centralized in NRC. These types of exports are normally licensed at the NRC staff level and in a timely manner. Therefore, we believe that if NRC were to review and approve all Government distributions under its rules, no DOE program would be adversely affected. (See section 3 of our draft bill in app. VIII.)

Actions still needed to improve the licensing process for highly enriched uranium

In our November 1980 report we strongly endorsed the Carter Administration's policy to reduce the enrichment levels of highly enriched uranium exports, but concluded that actions were needed to improve the predictability and timeliness of the export license process for highly enriched uranium. We found that persistent delays in receiving export licenses for highly enriched uranium caused European and Japanese recipients legitimate concerns in planning their nuclear research programs. We recommended that the Secretary of State improve the predictability and timeliness of the export licensing process for the highly enriched uranium by (1) telling foreign governments, after appropriate consultations, which reactors merit continued U.S. supplies pending commercial availability of more proliferation-resistant fuels and (2) expediting the executive branch processing of export request for presidential review.

To date, the State Department has not informed us of any action on our recommendation. Because concerns over the predictability and timeliness of the export licensing process remain, we continue to believe that the State Department should act on our recommendation.

NEED TO CLARIFY TO WHAT EXTENT EFFECTIVENESS OF INTERNATIONAL SAFEGUARDS SHOULD BE CONSIDERED IN EXPORT LICENSING

There is disagreement within NRC and between NRC and the executive branch over the types of information and assurances needed to determine compliance with the IAEA safeguards criterion of Title III (sec. 305). [1] Executive branch officials require that a nation agree to the application of safeguards via a safeguards agreement with IAEA. However, some NRC Commissioners require additional evidence that safeguards are being effectively applied, while others require not only that a nation accept the application of safeguards, but also that no available information indicates that safeguards are not being applied.

The purpose of this criterion is to assure that U.S. exported nuclear materials and equipment will be subject to the international safeguards discussed in chapter 4. Similar assurances were required by the United States prior to the NNPA through agreements for cooperation, which required recipient nations to accept bilateral U.S. safeguards. The NNPA permits suspension of U.S. safeguards when IAEA safeguards are being applied.

Executive branch officials believe that this criterion does not require a detailed evaluation of IAEA safeguards implementation. When the executive branch receives a license application, this criterion is considered met if sufficient assurances are received that IAEA safeguards are being "applied" at the foreign facilities. The types of assurances required are: for NPT nations, a full-scope IAEA safeguards agreement must be in effect; for non-NPT nations, agreement to submit only certain facilities or certain transferred materials to IAEA safeguards. After determining the above, the executive branch officials confirm that an IAEA subsidiary arrangement and facility attachment or ad hoc inspection procedures are in effect. These agreements are considered confidential by IAEA and are not available to the United States. They specify, among other things, the facilities under IAEA safeguards and details about the frequency and type of inspections IAEA plans to make. When the executive branch is assured that all these agreements are in effect, it considers the criterion to be met.

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[1] This statutory criterion is only one of several statutory conditions governing U.S. exports of nuclear materials and equipment. Appendix VII describes how NRC and the executive branch determine compliance with other major statutory conditions.

It is important to note that, although the executive branch does not consider whether IAEA safeguards are effectively applied as a requirement for this criterion, it does consider this during other parts of the export licensing process. For example, in judging whether an export would be "inimical to the common defense and security," as required by the act, the executive branch considers the technical content of IAEA safeguards application. The non-inimicality determination is a judgmental one and IAEA safeguards implementation is only one of many factors considered in the determination, as discussed further in appendix VII.

Executive branch views on the adequacy of safeguards are generally referenced to the general conclusion of an IAEA Safeguards Implementation Report that, while some deficiencies exist in the system, no diversion of a significant quantity of safeguarded nuclear material was detected in any of the nations in which inspections were carried out during the year. In addition, the executive branch considers overall IAEA safeguards' effectiveness in the context of efforts to enhance the effectiveness of such safeguards pursuant to Title II of the NNPA.

NRC also believes that the effectiveness of IAEA safeguards is important for deciding on nuclear export licenses. However, it is uncertain if section 305 of the Act requires an independent determination about safeguards adequacy for each export license application, or whether determination is included under the non-inimicality judgment mandated by the Act. Some Commissioners believe that they are required to make the independent determination and cite an October 3, 1977, Senate Committee report which speaks of exports being "subject to adequate safeguards." Other Commissioners, however, cite the bill passed by the House of Representatives on September 28, 1977, which says that IAEA safeguards "shall be applied," but does not say whether the Commission must independently determine whether those safeguards are adequate.

The Commissioners have sought congressional clarification on their responsibility on numerous occasions. For example, in a letter dated January 25, 1978, to Senator Frank Church, Commissioner Kennedy stated:

> "I believe that Congress must provide a clear legislative mandate and specific direction to this agency unambiguously describing the requirements which it must satisfy independently and those for which it should rely upon the Executive Branch. Otherwise,

there will be increasing delays and escalating interference with the essential element of nonproliferation policy and United States commerce."

On February 7, 1978, the Senate debated NRC's responsibility for this criterion. The debate resulted in general agreement that NRC is responsible for independently assessing the adequacy of safeguards, but agreement could not be reached on the extent of the assessment or on the types of information or assurances needed. As a result, section 304(a) of the Act was amended to state "That nothing contained in this section is intended to require the Commission independently to conduct or prohibit the Commission from independently conducting country or site specific visitations in the Commission's consideration of the application of IAEA safeguards."

In spite of this, NRC and the executive branch continue to disagree on the extent of NRC's responsibility to independently assess the adequacy of safeguards implementation. According to NRC officials, this disagreement has adversely affected NRC's ability to obtain sufficient information to make an independent assessment.

NRC relies primarily on input from the executive branch in making export licensing decisions. In determining compliance with the IAEA safeguards criterion, the NRC staff reviews the executive branch analysis to confirm that assurances have been received that all the appropriate IAEA safeguards documents are in effect. In addition, since November 1978, the Commission has requested from the NRC staff an analysis of available information about effective implementation of safeguards for all proposed recipient nations.

The executive branch has been reluctant to seek the additional information regarding effective implementation. The executive branch is concerned that by doing so it would appear that the United States does not rely on the IAEA system and is seeking to undermine the IAEA safeguards system. For example, in commenting to the President on various proposed agreements for cooperation, the Commission has requested the negotiation of provisions in new or amended agreements which would provide for the periodic exchange of information on the implementation of IAEA safeguards and the system of accounting and control in the recipient nation. However, NRC officials say that nothing has been done to comply with this request. As a result, NRC officials stated that they do not receive sufficient nation-specific safeguards information to allow them to independently assess the effectiveness of safeguards implementation.

In spite of the lack of information, NRC has been making favorable decisions on the IAEA safeguards criterion. NRC staff is compiling all available information on IAEA safeguards' effectiveness on a nation-by-nation basis and plans to provide this information as it is completed to the Commissioners for reviewing license applications. In the interim, summaries of available information have been provided to the Commissioners on a case-by-case basis. Although available information is limited, according to NRC officials, the Commission's position is that this criterion is met if all the appropriate IAEA safeguards mechanisms are in effect and no significant negative information about IAEA safeguards' effectiveness is available.

ELIMINATION OF DOUBLE CONTROL OVER RETRANSFERS OF PREVIOUSLY EXPORTED NUCLEAR MATERIALS

Of major concern to U.S. nuclear trading partners are those subsequent arrangements that involve U.S. approval of retransfers of U.S.-supplied materials. Before 1980, an NRC export license only gave the licensee authority to ship nuclear materials and equipment from the United States to its initial foreign destination. Once the export entered a foreign nation, NRC's regulatory jurisdiction was terminated. At this point, DOE would approve retransfers of the export (or nuclear material produced through the use of such material or equipment) to third nations. Any such retransfer required a written request from both the transferring and recipient nation. Retransfers among EURATOM members are exempted from requiring U.S. approval.

Many U.S. exports of enriched uranium are shipped from DOE facilities to foreign facilities for conversion into fuel pellets. They are then fabricated into fuel assemblies before being used in either powerplants or research reactors. Oftentimes the fuel conversion and fabrication plants are located in nations subject to different agreements for cooperation with the United States. When this occurred, movement of the export from the initial destination could require the foreign nations to request retransfer approval from DOE as a subsequent arrangement even though the retransfer was foreseen and approved in the NRC export license.

In 1980 the executive branch eliminated double control over retransfers of U.S. nuclear material exports that were anticipated at the time the export license was issued. The executive branch adopted a new policy, approved by the President, whereby retransfers anticipated during issuance of NRC export licenses would no longer require separate U.S. approval as a subsequent arrangement. This policy could provide major U.S. nuclear trading partners greater assurances of U.S. supply while reducing administrative burdens but without loss of non-proliferation assurances. Accordingly, we believe it is a reasonable policy and encourage its full implementation whenever practical.

LONG-TERM POLICY NEEDED FOR CARRYING OUT U.S. APPROVAL RIGHTS OVER FOREIGN REPROCESSING AND PLUTONIUM USE

A much more difficult task for the executive branch has been to develop a long-term policy for exercising U.S. approval rights over subsequent arrangements involving foreign reprocessing and use of plutonium that balances major U.S. nuclear trading partners' desires to recover and use plutonium from U.S.-controlled spent fuel with the non-proliferation assurances required by the NNPA. As discussed below, the need for developing such a policy will become more pronounced as more nations get closer to commercial use of plutonium.

How the United States will exercise its reprocessing and plutonium use approval rights in the future is very important to many of our nuclear trading partners. In some nations the continued use of nuclear power now depends, legislatively or from a public opinion standpoint, on spent fuel management arrangements that presume reprocessing. In the longer-term, development of plutonium breeder reactors and plutonium recycling in light water reactors is dependent on reprocessing. In addition, reprocessing is a multi-million-dollar-a-year business for two U.S. allies--France and the United Kingdom. One estimate places the value of the European reprocessing contracts over the next decade, including transport charges, at almost $3 billion. On the other hand, the proliferation implications of widespread reprocessing capabilities and plutonium use are important concerns of the United States.

In considering how the United States exercises its reprocessing and plutonium approval rights, it is necessary to distinguish between the statutory and policy conditions for DOE approvals. As discussed in appendix VI, the NNPA requires foreign requests to be processed as subsequent arrangements. Although the NNPA distinguishes between facilities which have and have not reprocessed power reactor fuel before its enactment on March 10, 1978, common standards clearly apply to both circumstances. Namely, the reprocessing and the subsequent retransfer of the derived plutonium must not result in a "significant increase in the risk of proliferation." The foremost consideration must be whether the reprocessing or retransfer will take place under conditions that will ensure "timely warning" to the United States of any plutonium diversion before a non-nuclear weapon nation could transform the diverted material into a nuclear explosive device.

In addition to these statutory standards, the executive branch, as a matter of policy, has adopted other conditions for approval until a new post-INFCE policy is formulated.

--Requests involving a clear showing of physical need (i.e., spent fuel congestion) will continue to be approved on a case-by-case basis if the requesting nation has made appropriate efforts to expand its spent fuel storage capacity.

--Requests not meeting the physical need condition but involving reprocessing contracts predating the President's call for deferral of commercial reprocessing in April 1977 will be considered for approval on a case-by-case basis if the approval will directly further major non-proliferation objectives.

--Prior approval by the United States will continue to be required for the subsequent transfer, including return to the nation which has title to the material, of any plutonium resulting from the reprocessing.

A State Department spokesman in an October 1978 congressional testimony characterized the executive branch's policy for granting reprocessing approvals as a "last resort." Storage of spent fuel, whether in the requesting nation, in the United States, or in an international repository, should come first. However, executive branch efforts to date have failed to provide for the acceptance of foreign spent fuel in the United States and have failed to create an international storage repository. 1/ As of February 3, 1981, the executive branch had approved, according to DOE, a total of 22 requests from Japan, Spain, Sweden, and Switzerland to retransfer spent fuel to British and French facilities for reprocessing since NNPA passage. At the time of approval, DOE expected that approximately 3,498 kilograms of plutonium ultimately would be recovered, as shown on the next page.

In these cases, U.S. approval was limited to retransfer of the spent fuel to the United Kingdom and France (nuclear weapon nations) and to its reprocessing. Subsequent transfers of the separated plutonium to other nations including its return to Japan, Spain, Sweden, or Switzerland (non-nuclear weapon nations) will require another U.S. approval. By conditioning any subsequent transfer of the separated plutonium on another U.S. approval, the executive branch effectively deferred addressing whether the statutory standards would be met for non-nuclear weapon nations, and what, if any, policy conditions should be attached to plutonium use.

1/See ch. 3 for a further discussion.

U.S. Approved Retransfers of Spent Fuel for Foreign Reprocessing (note a) March 10, 1978 through February 3, 1981

Transferring country (note b)	Reprocessing site (note c)	Number of requests	Total number of spent fuel elements retransferred	Expected quantity of recovered plutonium (kilograms)
Japan	United Kingdom	8	1,134	1,295
Japan	France	3	253	799
Spain	United Kingdom	3	197	303
Sweden	United Kingdom	4	454	589
Switzerland	United Kingdom	2	110	326
Switzerland	France	2	131	186
Totals		22	2,279	3,498

a/Based on DOE summary information.

b/Transferring country owns material retransferred and recovered from reprocessing.

c/Reprocessing in the United Kingdom is not expected to occur until the late 1980s. The spent fuel is to be stored in the United Kingdom until then.

The policy conditions, if any, that would be attached to U.S. approval of reprocessing in non-nuclear weapon nations are also of foreign concern, particularly in Japan. Unlike EURATOM nations, which can now reprocess U.S.-origin spent fuel within the European community without U.S. approval, Japanese reprocessing in a national facility is subject to U.S. approval. In September 1977, before NNPA passage, the United States approved the reprocessing of 99 metric tons of spent fuel over a 2-year period in the Japanese prototype reprocessing facility at Tokai Mura. Subject to certain restrictions and understandings, the approval was extended three times with certain modifications to June 1, 1981. The latest extension increased the total quantity of U.S.-supplied fuel to be reprocessed to 149 metric tons.

The future course of U.S. nuclear cooperation with other nations, particularly in Europe and Japan, depends fundamentally on reaching a consensus on the terms and conditions under which commercial reprocessing and plutonium use can proceed. Agreement on answers to questions such as these still need to be reached.

--What should be the purpose of reprocessing?

--Who may reprocess and where?

--What processes should be used for reprocessing spent fuel?

--What international controls are to be applied to reprocessing and the derived plutonium?

--What should be the rules for plutonium use, particularly in non-nuclear weapon nations?

Now that the INFCE studies have been completed, the United States can no longer afford to avoid clarifying the terms and conditions under which it will grant approval pending development of an international consensus on the reprocessing issue. The United States can expect pressure to act soon as indicated in the following INFCE finding.

> "The right of prior consent, which certain supplier countries wish to retain in respect of the retransfer to third countries and/or reprocessing of fuel supplied by them to consumer countries, may, if exercised arbitrarily, have a negative impact upon their assurance of fuel supply and a consequent adverse effect upon their nuclear programmes. Where the right of prior consent exists, the criteria for the exercise of such rights should be established, to the extent possible, before long-term contracts for fuel supply are concluded or, for short-term contracts, before fuel is committed to nuclear reactors. Also, such consent should, whenever

> possible, be given prior to the conclusion of commercial arrangements and not be exercised on a case-by-case basis but in a more general manner. It is generally agreed that pending development of common approaches to the exercise of the right of prior consent and as a first step towards broader international consensus, supplier countries should exercise that right in a manner that takes account of the national policies and particular circumstances of consumer countries, with the objective of avoiding, wherever possible, problems in the planning of their nuclear power programmes. Subject to relevant circumstances not having changed, the right of prior consent should be exercised in a manner that is predictable and that conforms to understandings that may have been reached between the parties when the right of prior consent was established." 1/

For the United States the underlying message of this INFCE finding is that its trading partners expect to be told what use they can make of U.S. nuclear fuel and equipment before they buy it. To fully adopt this INFCE approach in exercising its reprocessing and plutonium use approval rights would be a major departure from existing U.S. practices, particularly the executive branch policy of considering some foreign reprocessing requests only as a "last resort" for the disposition of spent fuel.

This "last resort" policy is widely regarded in Europe as an executive branch attempt to impose its reprocessing views on other nations. This is contrary to statements made by President Carter and the Congress regarding U.S. intentions. For example, in April 1977, when the President called for the indefinite deferral of commercial reprocessing and plutonium recycling in the United States he said:

> "We are not trying to impose our will on those nations like Japan and France and Britain and Germany which already have reprocessing plants in operation. * * * But I hope that by this unilateral action we can set a standard and that those countries that don't now have reprocessing capability will not acquire that capability in the future."

In addition, in the section establishing standards for approving foreign reprocessing requests, the NNPA provides that:

> "Nothing in this section is intended to prohibit, permanently or unconditionally, the reprocessing of

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1/"INFCE Final Report of Working Group 3," IAEA, February 1980.

> spent fuel owned by a foreign nation which fuel has been supplied by the United States * * *." (sec. 303(a))

Until the executive branch develops a long-term policy for carrying out U.S. approval rights over foreign reprocessing and plutonium use, we believe the United States should continue its case-by-case review of subsequent arrangements involving reprocessing and plutonium use and maintain the NNPA's strict standards governing U.S. approvals. However, we believe the executive branch could remove much of the uncertainty associated with how U.S. reprocessing approval rights are exercised in the interim by considering and acting on foreign requests without requiring the demonstration of physical need (i.e., spent fuel congestion). Although this would be a major departure from present executive branch policy, it would be more consistent with the NNPA provisions requiring the "timely consideration" of such requests. Further, because this change would allow our trading partners to request U.S. approvals before they enter into fuel supply contracts, it would allow them to more predictably plan their nuclear power programs.

In our November 1980 report to the Congress we recommended that the Secretary of Energy revise, in accordance with the executive branch consultative procedures established pursuant to the NNPA, the policy to allow the executive branch to consider and act on foreign reprocessing requests without trading partners having to demonstrate a physical need. Although DOE has not yet acted on our recommendation, we continue to believe such a change in executive branch policy is warranted at this time. In commenting on our recommendation to the House Committee on Government Operations and Senate Committee on Governmental Affairs in January 1981, DOE said that the physical need policy, along with other security of supply and nonproliferation issues, are being examined in fashioning post-INFCE U.S. policies. DOE also noted that the views of the new administration will have an important bearing on how this issue is dealt with in the future.

Since our November 1980 report, the Australian Government notified its legislative body of the policies under which approval for reprocessing of Australian-origin nuclear material will be considered. Because Australia is expected to become a large supplier of uranium in the international market, DOE must also consider their position in fashioning post-INFCE U.S. policies. After establishing a nation's overall energy needs for reprocessing and the adequacy of the control and safeguards to be applied, the Australian Government said approvals will be considered for specifically defined nuclear fuel cycle programs on the following bases:

--agreement in advance to reprocessing for the purpose of energy use;

--agreement in advance to reprocessing for the purpose of the management of materials (plutonium, fission products and unused uranium) contained in spent nuclear fuel;

--case by case consideration of requests for consent to reprocessing for other peaceful non-explosive purposes including research;

--storage and use of plutonium of Australian origin separated from spent fuel to be used in ways that do not cause proliferation dangers; and

--commitment by customer nations to support the development of more effective international control measures relevant to reprocessing, including an international plutonium storage scheme.

WAYS TO IMPROVE CONTROLS OVER FOREIGN COMMERCIAL NUCLEAR ACTIVITIES OF U.S. FIRMS AND INDIVIDUALS

In our November 1980 report, we concluded that a comprehensive reassessment is needed of the controls DOE administers over nuclear technology exports and all other unclassified foreign nuclear activities of U.S. firms and individuals. (Appendix VI provides a description of these controls.) We found that the controls contain significant loopholes and are not well coordinated with the controls administered by NRC and by the Department of Commerce. We also found that DOE's administration of the controls provides too many opportunities for arbitrary executive branch decisions and no opportunities for public or congressional scrutiny. We recommended that the Secretary of Energy take the lead in coordinating a comprehensive interagency reassessment of the controls and how they are administered. In commenting on our recommendation to the House Committee on Government Operations and Senate Committee on Governmental Affairs in January 1981, DOE said that such an interagency reassessment is unwarranted.

We continue to believe that there is a need for improvements in DOE-administered controls over foreign commercial nuclear activities. Given DOE's opposition to our recommendation, we believe the Congress should look very closely at DOE's administration of these controls to ensure that this type of U.S. nuclear cooperation does not contribute to proliferation and that they are properly administered. Specifically, the Congress should amend the NNPA to require DOE to take the following actions.

Limit general authorizations to non-nuclear weapon nations that adhere to full-scope safeguards

DOE distinguishes between communist and "free-world" nations when implementing its controls over foreign nuclear activities of U.S. firms and individuals. We believe this practice is insufficient because it allows U.S. firms and individuals to provide significant nuclear technology to non-nuclear weapon nations that do not adhere to the full-scope safeguards criterion of Title III.

This full-scope safeguards criterion (sec. 306) requires that IAEA safeguards must now be maintained on all the peaceful nuclear activities of a non-nuclear weapon nation in order to receive (1) exports of nuclear material and equipment under an NRC license or (2) exports of "sensitive nuclear technology" under a specific authorization by the Secretary of Energy. DOE has provided U.S. firms and individuals a "general authorization" to conduct certain activities in free-world nations that include the export of civilian nuclear power reactor technology and assistance. Under this general authorization, U.S. firms in the last 25 years have sold or licensed to many foreign manufacturers U.S. technology for producing nuclear reactors.

For significant transfers of U.S. nuclear technology, such as manufacturing licenses, we believe DOE's general authorizations should be limited to non-nuclear weapon nations that adhere to Title III's full-scope safeguards requirement. This, in our opinion, would enhance the effectiveness of U.S. controls over its nuclear technology. Further, this would be more consistent with other NNPA provisions and reinforce U.S. support for the IAEA safeguards system.

This proposal could be implemented by a revision to DOE's regulatory procedures (10 C.F.R. 810). However, since DOE has indicated that it does not plan to review these controls, we believe the Congress should require DOE to do so. (See section 4(c) of our draft bill in app. VIII.)

Provide for the withdrawal of DOE general authorizations in the event the President terminates other nuclear exports

Title III (sec. 307) provides for the termination of nuclear material and equipment exports and sensitive nuclear technology exports in the event recipient nations conduct certain prohibited activities, such as detonating a nuclear explosive device. In such circumstances, however, there is no requirement for the withdrawal of DOE's "general authorization" for nuclear technology transfers or for other foreign nuclear fuel cycle-related activities of U.S. firms and individuals.

Under the NNPA, the President has not made a decision to terminate nuclear exports to any nation. Nevertheless, to improve the effectiveness of any such termination, if it occurs, we believe that any DOE general authorizations to U.S. firms and individuals for technology transfers or other assistance to the nation's nuclear fuel cycle should immediately be withdrawn.

In commenting on our November 1980 report, DOE noted that it was considering revising its regulations to provide for the withdrawal of DOE's general authorization to U.S. firms and individuals for nuclear technology transfers if the licensing of nuclear material and equipment is terminated. To date, DOE has not made such a revision to its regulations. Therefore, we believe the Congress should require DOE to do so. (See section 6 of our draft bill in app. VIII.)

Allow the Secretary of Energy to delegate approval authority

Section 161(n) of the Atomic Energy Act prohibits the Secretary of Energy from delegating authority for granting any "specific authorizations" to U.S. firms and individuals engaging "in the production of special nuclear material outside the United States." According to DOE about 20 to 25 requests for such specific authorizations are received each year

Requests for specific authorization from the Secretary of Energy most often undergo a time-consuming interagency review before they are approved or denied. For example, between March 1978 and May 1979 the Secretary acted on 16 requests that required his authorization--14 were approved, while two were denied. It took an average of 6-1/2 months to review and to decide on these requests. Such lengthy reviews have adversely affected several U.S. firms.

The need for the Government to make its reviews more timely is unfortunately demonstrated by the experiences of two U.S. firms. In each instance, the Secretary's approval came, according to the firms, after they were informed that the customer could no longer wait for them to obtain the Secretary's authorization. In one instance, the U.S. firm needed the Secretary's authorization to sell standard welding equipment for use at a nuclear component fabrication plant to a communist nation. The other firm needed the Secretary's authorization for its foreign subsidiary to manufacture and sell two heat exchangers for use in a small pilot enrichment plant in a "free-world" nation.

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This sale was eventually made by a foreign licensee of another U.S. firm that had not initially requested the Secretary's approval.

We believe that prohibiting the Secretary of Energy from delegating authority for granting "specific authorizations" is an unneeded obstacle to timely action on some requests. Further, not all requests, in our opinion, are of such a nature that they justify the Secretary's personal attention. We note that the NRC Commissioners are allowed to delegate authority for approving export licenses to staff offices and such action has reduced the processing time for issuing licenses. Accordingly, we believe the Secretary of Energy should be provided the discretionary authority to delegate approvals in this area. (See section 4(c) of our draft bill in app. VIII.)

Require DOE to provide a better public accounting of its decisions

Unlike NRC's "open" export licensing process, DOE's consideration of requests for approval of U.S. activities in foreign nuclear programs takes place under a comparatively "closed" process. Further, neither the public nor the Congress are routinely informed of the decisions DOE makes. We believe DOE should be required to provide a better public accounting of its decisions.

We believe the following two actions would be helpful. First, DOE should, as now required for subsequent arrangement approvals, publish in the Federal Register notice of its approval of any proposed foreign activity of a U.S. firm or individual. Second, DOE should be required to periodically report to the Congress the approvals it has granted, and any non-compliance by U.S. firms and individuals of its regulations or U.S. policy. The President's annual report to the Congress on Government activities to prevent proliferation, required by section 601 of the NNPA, appears to offer a good vehicle for such periodic reporting.

Changes in law are not required for DOE to take these actions. However, since DOE has indicated it does not plan to review these controls, we believe the Congress should require DOE to take the actions. (See sections 4(b) and 10 of our draft bill in app. VIII.)

SHOULD THE NRC RETAIN ITS NUCLEAR EXPORT LICENSING FUNCTIONS?

The role of NRC in the nuclear export licensing process has been a matter of considerable debate ever since the licensing regulatory functions of the Atomic Energy Commission were transferred to NRC by the Energy Reorganization Act of 1974 (42 U.S.C. 5841(f)). Initially the debate centered around the appropriateness of a regulatory agency, independent of presidential control, having a highly visable decisionmaking role in what essentially amounts to foreign policy and national security judgments. Concerns were also expressed that NRC's addition to the export licensing process contributed to foreign customer perceptions that the United States was becoming an unreliable trading partner. In the aftermath of the Three Mile Island accident, the focus of the debate shifted to whether NRC's involvement in export licensing detracted from its primary mission of ensuring the safety of nuclear power in the United States.

We weighed arguments for and against the retention of NCR's role. Specifically, NRC, before issuing an export license, provides an independent review of an executive branch judgment that an export will not be detrimental to U.S. security. If NRC decides not to issue a license, this could trigger direct involvement of the President and the Congress. We did not find sufficient justification to recommend removal of NRC from the export licensing process given past indications of congressional intent and NRC's recent performance.

NRC provides an independent review of executive branch judgments

The Congress has always exercised special surveillance over nuclear exports. At the time the Energy Reorganization Act gave NRC export licensing authority, direct congressional oversight was maintained through the Joint Committee on Atomic Energy. Until 1977, the executive branch was required to keep the Joint Committee "fully and currently informed" on all of its nuclear activities. In September 1977, legislation abolishing the Joint Committee was signed into law and its legislative and oversight functions were subsequently distributed to several House and Senate committees.

In March 1978, the Congress, through the NNPA, clearly established NRC's independent decisionmaking role in the export licensing process and established certain circumstances where NRC action or inaction could trigger direct congressional involvement. The NNPA also carefully defined how NRC should exercise its nuclear export licensing functions. Such congressional guidance was not provided in the Energy Reorganization Act.

In general, NRC's major non-proliferation role under the NNPA is to independently review executive branch judgments regarding proposed exports of nuclear materials and equipment such as nuclear fuel and power or research reactors. Specifically, NRC must determine that all applicable statutory criteria and requirements are met before it can grant an export license. In discharging its licensing responsibilities, NRC basically must consider whether the necessary agreements, understandings, and safeguards are present for each nuclear export and whether these provide "reasonable assurance" that U.S. exports will not be diverted to any unauthorized use such as nuclear weapons.

It is important to keep NRC functions in perspective and not overstate its role. NRC now only has final decisionmaking responsibility (subject to presidential override of negative decisions) for licensing exports of specified types of nuclear materials and equipment. Further, once the export enters a foreign country, NRC's regulatory jurisdiction is terminated and DOE picks up regulatory controls under the subsequent arrangement procedures of the NNPA. Although DOE is required to consult with NRC and other agencies on subsequent arrangement decisions, NRC is not required to concur.

In addition, the independent functions NRC performs in the nuclear material and equipment licensing process is not performed when DOE authorizes exports of nuclear technology and foreign nuclear fuel cycle activities of U.S. firms and individuals nor when the Department of Commerce licenses nuclear-related commodities. NRC does "consult" with the agencies, but, like subsequent arrangement decisions, NRC is not required to concur.

We strongly believe that an independent NRC provides the kind of oversight of executive branch actions that the Congress historically has considered necessary in the nuclear field. The fundamental issue is whether NRC's independent decisionmaking is the best vehicle for this type of review of executive branch actions. If the Congress removed NRC from the export licensing process, decisions would have to be made on whether some or all of the functions NRC provides in the licensing process should be retained, and what alternative organizational arrangements should be established.

Foreign policy concerns

The paramount concern, as reflected in the Atomic Energy Act of 1954, and reaffirmed in NNPA amendments, is the "common defense and security" of the United States. Non-proliferation assurances contained in international and bilateral agreements or other understandings along with sensitive or classified information pertaining to motives, intentions, or actions of other nations are major foreign policy considerations in arriving at judgments about the common defense and security.

NRC is not bound by presidential and/or State Department agreements with foreign nations when such agreements directly affect its statutory responsibilities for determining compliance with export licensing criteria. According to a State Department official, rather than objecting to NRC's role on a theoretical basis when NRC became responsible for licensing exports in 1975, the executive branch decided to find a pragmatic way to work with NRC. In February 1976 an executive order was published establishing mutually agreeable procedures for NRC and executive branch reviews of export licenses.

The 95th Congress, in drafting the NNPA, was quite mindful of possible negative foreign policy impacts of NRC's role in export licensing. Before the NNPA's enactment, NRC could deny licenses for nuclear material and equipment exports even if there were overriding foreign policy considerations. This concern was a motivating factor for several NNPA provisions providing presidential authorization of exports subject to congressional review and possible disapproval.

--The NNPA gives the President authority to override a negative NRC decision. NRC may find that the proposed export fails to meet statutory licensing conditions. In this situation, NRC is required to refer the license application to the President. The export may be authorized by executive order if the President determines that withholding the export "would be seriously prejudicial to the achievement of United States non-proliferation objectives, or would otherwise jeopardize the common defense and security." In April 1978, the President authorized a nuclear fuel export to India after referral by NRC because it reached an impasse on the license. At that time the Commission had four members and only two voted in favor of the export. In May 1980, NRC referred seven export applications to the President. They involved sending nuclear fuel and reactor replacement parts to India, and the Commission found that the proposed exports failed to meet statutory licensing conditions. In accordance with the NNPA procedures, the President authorized these exports by executive order on June 19, 1980. The order was reviewed by the Congress. The House voted against making the exports and the Senate voted in favor of making the exports. As a result, the President's authorization was upheld.

--The NNPA also gives the President discretion to supersede NRC. If NRC has not decided on a pending application within 120 days from receipt of executive branch approval, the President may withdraw the application from NRC and authorize the export by executive order. In such a situation, the President is not required to authorize the export, but may do so upon a finding that "further delay would be excessive" and that withholding the export "would be seriously prejudicial to the achievement of United States non-proliferation objectives, or would otherwise jeopardize the common defense and security." There are several constraints to Presidential use of this discretionary authority, however. If NRC begins procedures for public participation or has outstanding requests for additional information from the executive branch, the President cannot supersede NRC for at least 60 days after completion of public proceedings or until the executive branch has responded fully to NRC. Further, such a Presidential authorization is subject to congressional review and possible disapproval.

Although the President has not used his discretionary authority to supersede NRC, the procedure provides the executive branch a means to resolve those cases where NRC delays could seriously hinder its conduct of U.S. foreign policy. However, present referral procedures do not specifically take into account U.S. export industry needs for prompt action on some applications. Therefore, we believe there should be some means whereby the applicant can seek higher level approval after a reasonable time period. To this end, we believe that NRC, when requested by the applicant, should refer to the President for decision those applications NRC has had for at least 120 days after receipt of a favorable executive branch recommendation. In deciding whether to authorize the proposed export, the President would have to balance the lack of NRC approval and any unresolved issues or requests for additional information against the needs of the applicant requesting presidential action. (See section 5(c)(2) of our draft bill in app. VIII.)

Additionally, we believe that our previously discussed proposal for revising written notification requirements when executive branch and NRC review time limits are exceeded would assist the Congress in monitoring any possible negative impacts of NRC delays. Under this proposal, the Senate Committee on Foreign Relations and the House Committee on Foreign Affairs would be provided written reasons for NRC licensing delays or inaction over 60 days. Consequently, the Congress should be in a better position to objectively assess the extent NRC's role in the licensing process may be hindering the conduct of U.S. foreign policy or impeding export sales.

Safety concerns

The President's commission investigating the Three Mile Island accident (the Kemeny Commission) in an October 1979 report recommended that any statutory responsibilities not germane to safety should be removed from NRC's jurisdiction. A special inquiry group on the accident, in its report of January 1980 (the Rogovin report), recommended that NRC's jurisdiction over export licenses should be transferred to the Department of State or ACDA, which should then consult with NRC on safety-related matters. Neither report, however, included any analysis that demonstrated removal of the export licensing function from NRC would put it in a better position to assure the safety of nuclear power in the United States.

In February 1980, the Chairman of NRC, speaking for three of the then five Commissioners, 1/ urged the Director of OMB that President Carter's proposed reorganization plan of NRC include transfering nuclear export licensing functions to an executive branch agency. He said that these functions involve a substantial amount of the Commissioners' time and divert agency resources from domestic safety matters. In their majority view, the narrow expertise of NRC in export matters does not justify the large expenditure of Commissioners' time and other agency resources. At that time two Commissioners in the minority sharply disagreed with this view. In their opinion, to tie domestic reactor safety failures to export regulation is at best misleading. They said that the Commission has, and has had, enough time for safety, but in the past the Commission took an overly relaxed view of its safety responsibilities. The final NRC reorganization plan submitted to the Congress contained no provisions for the transfer of export licensing functions from NRC.

The vast majority of nuclear export licenses are reviewed and approved by NRC's Office of the Assistant Director for Export/Import and International Safeguards 2/ without referral to the Commissioners. This office has no responsibility for nuclear power safety issues so its time in no way distracts from NRC consideration of safety issues. Further, as implementation of the NNPA has become more routine, the Commissioners have delegated more authority to this office, and as a result there has been a marked decrease in the number of cases the Commissioners review, as the following data reveals.

1/The term of one of the Commissioners expired on June 30, 1980.

2/According to an NRC official, this office currently employs 12 professionals and 3 support staff. In total, NRC is authorized about 3,300 positions in fiscal year 1981.

Export License Applications Personally
Reviewed and Approved by NRC Commissioners
Since NNPA Passage

	First year (Mar. 10, 1978 to Mar. 9, 1979)	Second year (Mar. 10, 1979 to Feb. 29, 1980)	Third year (Mar. 1, 1980 to Feb. 10, 1981)
As a percentage of major exports licensed	60.2 percent (53 of 88)	57.0 percent (49 of 86)	35.8 percent (38 of 106)
As a percentage of all exports licensed or amended	10.4 percent (53 of 512)	7.0 percent (49 of 698)	7.6 percent (38 of 500)

Although other offices, such as the Office of Nuclear Material Safeguards and Security and the Office of the Legal Director, are concerned with export licensing matters, only a few of their staff are routinely involved.

Current system working reasonably well

The current system, although complex, is working reasonably well. Foreign concerns and perceptions about U.S. unreliability caused by NRC involvement in the export licensing process should abate as licensing time frames continue to improve. In fact, retaining NRC and its current system offers continuity and independence from the policies and actions of changing administrations. The staggered 5-year terms of the NRC Commissioners help to ensure that nuclear export procedures evolve, rather than undergo possible abrupt shifts under new administrations.

The argument that export licensing detracts from NRC's safety mission should, in the future, carry even less force as more precedents are established, and other actions such as the program to reduce enrichment levels of highly enriched uranium materialize, thus requiring less personal attention to export licensing matters by the NRC Commissioners. With respect to interfering in foreign policy, the NNPA now provides the executive branch a means to resolve those cases where NRC delays could seriously hinder the conduct of U.S. foreign policy.

NRC's involvement in the licensing process provides assurances that statutory conditions are being adhered to, and, moreover, that nuclear export licensing decisions are not made for short-term political reasons at the expense of long-term non-proliferation objectives. Thus, NRC provides an important independent mechanism for reviewing executive branch actions.

Other views

A number of knowledgeable individuals believe that NRC should not be involved in nuclear export licensing and that those licensing functions now performed by NRC should be transferred to an appropriate executive branch agency. In general, their arguments revolve around their assertions that (1) NRC interferes in the executive branch's formulation and implementation of foreign policy, (2) NRC attention to export licensing detracts from its safety mission, and (3) NRC involvement lengthens the licensing time frame and contributes to foreign perceptions that the United States is an unreliable supplier.

In addition to these fundamental concerns, these individuals have identified the following specific issues.

--NRC lacks competence in the area of nuclear weapons; therefore, it should not be in a position to make judgments regarding U.S. "common defense and security."

--Continual and unpredictable changes in NRC's composition over the years does not lend itself to the long-term nature of U.S. foreign agreements and fuel contracts.

--The Congress, not NRC, should be the "watchdog" over Presidential and executive branch actions if such oversight is needed.

--Removing NRC from the licensing process would be the most visible improvement that could be made to restore foreign confidence in U.S. licensing procedures.

These types of views are generally discussed in appendix IX.

Alternative organizational arrangements

If NRC were removed from the export licensing process, the Congress would have to develop an alternative organizational arrangement. Basically, two categories of options are available--either transfer NRC's functions to another agency or establish certain conditions that would trigger congressional review of all nuclear exports over a prescribed value, over a specified quantity of nuclear material, meeting predetermined proliferation sensitivity conditions, or meeting other threshold conditions.

An analysis by the Congressional Research Service 1/ discusses the first option of transferring NRC's functions to other agencies. It presents the pros and cons of three alternatives: (1) create a small, new independent export control agency; (2) assign the functions to an autonomous part of an existing regulatory agency; or (3) transfer NRC's responsibilities to one of the executive branch agencies currently involved in licensing nuclcar exports.

The second category of options would transfer the functions to an executive branch agency and would establish certain threshold conditions that would trigger congressional review of selected nuclear export license applications. A potential model could be the Arms Export Control Act (P.L. 90-629) that requires the President to submit reports on proposed sales of defense articles or services for $25 million or more, or any defense equipment for $7 million or more, to the Speaker of the House and Chairman of the Senate Foreign Relations Committee. The reports contain such information as

--the reasons the foreign nation or international organization needs the defense articles or services;

--the reasons why the proposed sale is in the national interest of the United States; and

--an analysis of how the proposed sale would affect the relative military strengths of nations in the region to which the defense articles or services are to be delivered.

The Act provides that the letter offering to sell shall not be issued if the Congress, within 30 days, adopts a concurrent resolution objecting to the proposed sale unless the President states that an emergency exists which requires such sale in the national security interest of the United States.

Although legislation providing congressional review over nuclear exports would need to be specifically tailored to such exports, the threshold concept triggering congressional review found in the Arms Control Export Act, the International Security and Development Cooperation Act of 1980, and other legislation appear to be relevant models.

1/"Options and Considerations for Transfer of the Nuclear Regulatory Commission's Nuclear Export Licensing Functions to the Executive Branch," Congressional Research Service, the Library of Congress, by Warren H. Donnelly, Senior Specialist, February 29, 1980.

Net assessment

Ultimately the Congress must weigh the advantages and disadvantages of different organizational arrangements and determine what best accomplishes how the Congress wants to control nuclear exports. The basic question the Congress needs to address is whether exports of nuclear materials and equipment are so important that they deserve special independent attention or whether nuclear exports should be treated like most other commercially available commodities and considered as one of many interrelated issues to be addressed in carrying out foreign policy, protecting national security, and promoting international commerce.

The available evidence and philosophical rationale for retaining or removing NRC from the nuclear export licensing process does not crystallize into a "clear-cut" choice but rather into a judgment call as to how the Congress wishes the Government to be organized to regulate nuclear exports. As such, we recognize that this represents a legitimate national policy issue that the Congress may wish to reexamine.

CONCLUSIONS

The nuclear export control provisions of Title III are the most complex and controversial aspects of the NNPA. Shortly after the NNPA was passed, the United States experienced numerous implementation problems. The problems caused temporary disruptions in nuclear trade with allies and delays in processing export license applications and other export authorizations. Much of the controversy and criticism emanated from U.S. industry as well as recipient nations. Many feared that Title III provisions were too stringent, would cause lost U.S. sales and influence in the world market, and therefore, would be counterproductive to U.S. non-proliferation goals and objectives. Many of the implementation problems have since been resolved.

The trend within NRC and the executive branch agencies is toward continued streamlining of the export licensing process. We strongly endorse this trend toward a more focused export control system where the non-proliferation credentials of the recipient nation and the potential sensitivity of the export dictate whether an export license application is handled on a streamlined basis or receive detailed case-by-case scrutiny. There has been a steady improvement in export licensing processing time frames as NRC and the executive branch agencies move toward a more focused approach. This is not to say that further improvement is not needed. More attention needs to be paid to making the licensing process more timely and predictable because the publicity accorded to delays contributes to foreign doubts about U.S. reliability. Further, there is a need to clarify the extent to which the effectiveness of IAEA safeguards should be considered by NRC in export licensing.

In 1980 the executive branch announced a new policy which eliminated double control over subsequent arrangements which involved retransfer of previously exported nuclear material. We believe it is a reasonable policy and encourage its full implementation. However, a much more difficult task for the executive branch has been to develop a long-term policy for exercising U.S. approval rights over subsequent arrangements involving foreign reprocessing and the use of plutonium. Until such a policy is developed, we believe the United States should continue its case-by-case review of such subsequent arrangements and maintain Title III's strict standards governing U.S. approvals. However, we believe the executive branch could remove much of the uncertainty associated with how U.S. reprocessing approval rights are exercised by considering and acting on foreign requests without requiring the demonstration of physical need.

We continue to believe that there is a need for improvements in DOE-administered controls over foreign commercial nuclear activities of U.S. firms and individuals. Given DOE's opposition to our previous recommendation for a comprehensive interagency reassessment of these controls and how they are administered, we believe the Congress should look very closely at DOE's administration of these controls to ensure that this type of U.S. nuclear cooperation does not contribute to proliferation and that they are properly administered.

With respect to NRC's role in the nuclear export licensing process, we did not find the arguments for removal persuasive enough to recommend such a major change. However, we recognize that this is a complex and controversial national policy issue that the Congress may want to reexamine. A change in NRC's role would affect many of our recommendations which are predicated on the status quo.

RECOMMENDATION TO THE SECRETARY OF STATE

We recommend that the Secretary of State improve the predictability and timeliness of the export licensing process for highly enriched uranium by (1) telling foreign governments, after appropriate consultations, which reactors merit continued U.S. supplies pending commercial availability of more proliferation-resistant fuels and (2) expediting the executive branch processing of export requests for presidential review.

RECOMMENDATIONS TO THE SECRETARY OF ENERGY

We recommend that the Secretary of Energy, in conjunction with the Secretary of State, the Director of ACDA, and the Chairman of NRC:

--Revise executive branch export licensing procedures (43 Fed. Reg. 25326) to allow generic recipient government assurances for repetitive exports.

--Revise the policy to allow the executive branch to consider and act on foreign reprocessing requests without requiring the demonstration of physical need.

RECOMMENDATIONS TO THE CONGRESS

To help improve the export licensing process, we believe the Congress should amend the NNPA to:

--Revise the licensing delay notification requirements to require the executive branch and NRC to better account for licensing delays and inaction.

--State that it is U.S. policy to provide expedited review procedures for exports under new or renegotiated agreements for cooperation.

--Exempt exports from complying with licensing criteria that do not conform with requirements of a new or renegotiated agreement for cooperation.

--Transfer DOE's authority to approve all non-military Government exports of nuclear materials to NRC.

--Require NRC to refer to the President for decision those export license applications which NRC has had a favorable executive branch recommendation under review for 120 days, if the applicant requests such a referral.

To further help improve regulation of foreign commercial nuclear activities of U.S. firms and individuals, we believe the Congress should amend the NNPA to require DOE to take the following actions:

--Limit general authorizations of significant transfers of nuclear technology to non-nuclear weapon nations that adhere to full-scope safeguards.

--Provide for the withdrawal of DOE general authorizations in the event the President terminates other nuclear exports.

--Allows the Secretary of Energy to delegate approval authority for granting U.S. firms and individuals authorization for certain commercial nuclear activities abroad.

--Provide a better public accounting of authorizations granted.

Appendix VIII presents a text of suggested specific legislative amendments to the NNPA.

Further, the Congress should clarify to what extent effectiveness of international safeguards should be considered by NRC in export licensing.

CHAPTER 6

LIMITED PROGRESS IN RENEGOTIATING AGREEMENTS, BUT FEW CHANGES NEEDED IN TITLE IV

Title IV of the NNPA expands U.S. criteria for future agreements for peaceful nuclear cooperation and directs the President to attempt to change existing agreements to comply with the new criteria. Although the executive branch made an extensive attempt to renegotiate existing agreements and focused on nations likely to agree to the new conditions, much of the task has not been completed. Furthermore, the renegotiation effort has apparently contributed to strains in U.S. relations with some nuclear partners.

Nevertheless, deletion of the renegotiation provision from Title IV does not seem necessary or desirable because (1) enhancing U.S. controls is worth pursuing, (2) a commitment to renegotiate has not been required for continued cooperation, except with EURATOM, (3) some nations have revised, or are in the process of revising, their agreements, and (4) deletion could reinforce foreign perceptions that U.S. policy is subject to sudden shifts. However, the renegotiation effort should be conducted in a manner that is sensitive to the attitudes and needs of cooperating partners. Moreover, the requirement that the President annually decide whether nuclear trade can continue with EURATOM should be eliminated.

Title IV also directs the President to seek adoption of specified common nuclear export policies by all nations. Progress in this endeavor has been limited. The United States should, how ever, continue to seek the establishment of upgraded common export policies because such an accomplishment would represent a major step in controlling the risk of proliferation.

LIMITED PROGRESS IN OVERCOMING FOREIGN RELUCTANCE TO RENEGOTIATE AGREEMENTS

The U.S. mechanism for international cooperation in the peaceful uses of nuclear energy is a bilateral agreement for cooperation. Prior to the NNPA, the Atomic Energy Act of 1954 had specified that each agreement contain guarantees that safeguards be maintained, U.S. nuclear exports would not be used for atomic weapons, and transferred materials or restricted data would not be retransferred except as allowed under the agreement. In practice, agreements in effect in 1978 typically contained controls above and beyond those required by the 1954 Act, such as U.S. controls over reprocessing of spent U.S.-origin fuel.

New criteria established and renegotiation effort mandated

Title IV adds six new criteria for agreements to the 1954 act and expands three others. (See table on following page.) Some of these changes codify what had been U.S. practice, while others extend controls beyond those in pre-1978 agreements or Title III's export licensing criteria.

Two of the most important changes involve safeguard requirements and U.S. prior consent rights. A cooperating partner's safeguard requirements regarding U.S. nuclear exports are specified in greater detail than before, and non-nuclear weapon nation partners must also maintain IAEA safeguards on all nuclear materials. U.S. prior consent rights over the reprocessing of spent U.S.-origin fuel are now required in future agreements. (Similar provisions were already part of most existing U.S. agreements.) Furthermore, in future agreements, prior consent rights to be obtained by the United States over reprocessing and retransfers are to be expanded to cover materials used in or produced through the use of U.S. nuclear exports. Thus, under a new agreement, if a nation were to use non-U.S. fuel in a U.S.-supplied reactor, it would have to obtain U.S. permission to reprocess or retransfer the spent fuel. Most of the agreements existing in 1978 did not include prior consent rights involving non-U.S. fuel, nor are such rights required under Title III's export licensing criteria.

Title IV also attempts to expedite the revision of existing agreements, many of which are not due to expire for several years. The President is required to initiate a program to renegotiate existing agreements, or to otherwise obtain cooperating nations' acceptance of the new criteria, and to "vigorously seek" retroactive application of new criteria to previously exported nuclear material or equipment and to special nuclear material produced in or through their use. However, the NNPA allows the President to exempt a proposed agreement from any of the criteria if inclusion would harm U.S. non-proliferation interests or security. A deadline for completion of the renegotiation program is not specified, and penalties are not prescribed for a nation that refuses to renegotiate its agreement. Furthermore, Title IV specifies that the new criteria will not affect the authority to continue cooperation under existing agreements.

Summary of Criteria for

Agreements Under Title IV

(1) The cooperating party guarantees that safeguards specified in the agreement must be maintained on (1) transferred nuclear materials and equipment, and (2) special nuclear material used in or produced through the use of transferred materials and equipment, so long as the material or equipment remains under its control. The obligation continues whether the agreement itself terminates or is suspended.

(2) As a condition of continued U.S. supply, in the case of non-nuclear weapon nations, the cooperating party must maintain IAEA safeguards on all nuclear materials in all of its peaceful nuclear activities.

(3) The cooperating party must guarantee that no transferred nuclear materials, equipment, or sensitive technology, and no special nuclear material produced through the use of such transfers, will be used for any nuclear explosive device, research and development on such devices, or any military use.

(4) The United States must have the right to require return of transferred material and equipment from a non-nuclear weapon nation that detonates a nuclear explosive device or abrogates an IAEA safeguards agreement.

(5) Transferred material, restricted data 1/, production or utilization facilities, or any special nuclear material produced through the use of such material or facilities must not be transferred from the control of the cooperating party without U.S. consent.

(6) The cooperating party must guarantee the maintenance of adequate physical security on transferred materials and special nuclear material used in or produced through the use of any transferred materials or production or utilization facilities.

(7) No transferred material, or material used in or produced through the use of transferred material or transferred production or utilization facilities, may be reprocessed, enriched, or otherwise altered without prior U.S. approval.

(8) The United States must approve in advance storage facilities for weapon-usable material that is transferred, recovered from transferred source or special nuclear material, or recovered from source or special nuclear material used in a transferred production or utilization facility.

(9) All of the above criteria must apply to any special nuclear material, production facility, or utilization facility produced or built by the cooperating party with transferred sensitive nuclear technology. 2/

1/"Restricted data" is any data concerning (1) the design, manufacture, or utilization of atomic weapons, (2) special nuclear material production, or (3) the use of special nuclear material in energy production. Not included is data declassified or otherwise removed from this category. See 42 U.S.C. 2014 (y).

2/"Sensitive nuclear technology" is defined in section 4 (a) (6) of the NNPA. (See app. I.)

The U.S. renegotiation effort

When the NNPA was enacted the United States had agreements for peaceful cooperation with 25 nations 1/, EURATOM, and IAEA. Other nations were seeking to initiate cooperation by negotiating new agreements. In response to the NNPA, an executive branch task force formulated a set of guidelines for negotiation scheduling. It decided that priority would generally be given to

--nations likely to agree to the cooperative framework sought by the United States,

--nations with nuclear programs or plans indicating the need for early agreement with the United States, and

--full parties to the NPT or the Treaty of Tlatelolco.

According to the executive branch, these guidelines continue to apply, although opportunities for scheduling negotiations have also played a role.

The executive branch's decision to focus on nations likely to agree with the United States was a deliberate attempt to build a favorable "track record" early in the negotiation program. It was hoped that successful renegotiation of an initial series of agreements would strengthen the U.S. position in subsequent negotiations with nations less in accord with U.S. nonproliferation policies. This approach necessarily meant a de facto postponement of more "difficult" renegotiations. In cases involving partners not in compliance with the full-scope safeguards export licensing criterion, renegotiation was put aside until arrangements allowing continued exports under the existing agreements could be worked out.

Talks with potential cooperating partners were not postponed in order to focus on the renegotiation of existing agreements. Department of State officials indicated that such a step

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1/Argentina, Australia, Austria, Brazil, Canada, Finland, Indonesia, India, Iran, Ireland, Italy, Japan, South Korea, Norway, the Philippines, Portugal, South Africa, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, Venezuela, and South Vietnam. The agreements with Indonesia, Iran, Ireland, Italy, Venezuela, and South Vietnam have since expired. U.S. cooperation with Ireland and Italy is presently covered under the agreement with EURATOM. The United States has not made nuclear exports to South Africa or South Vietnam since 1975. According to the executive branch, the United States has told South Africa that continued cooperation would require South African NPT adherence and acceptance of full-scope safeguards.

could have reinforced foreign suspicions that the United States was no longer interested in providing nuclear cooperation. These officials believe that negotiation of new agreements had not delayed or impaired the renegotiation of existing agreements.

Status of the renegotiation effort

The executive branch has conducted a series of negotiations, discussions, and other contacts involving some 30 nations and international organizations. To date, agreements with four cooperating partners--Australia, Canada, Indonesia, and IAEA [1]--have been renegotiated or amended, approved by the President, and reviewed by the Congress. [2] None of these partners is generally considered to be of major proliferation concern. Nevertheless, a number of nations, including some with good non-proliferation credentials and others of greater concern, have yet to renegotiate their agreements.

Existing agreements with 17 nations and EURATOM have not been replaced or modified. (See table on following page.) Only one of these nations, Norway, has completed negotiations with the United States. (An initialed draft is now awaiting presidential review.) Three more nations--Sweden, Finland, and Japan--are negotiating with the United States. Formal negotiations have not yet begun, however, with the 13 other nations or EURATOM. In 10 of these nations and EURATOM, the question of renegotiation has not gone beyond the "discussions" stage. [3] According to the executive branch, nuclear cooperation matters concerning two other partners--India and South Africa--involve "special problems and are being addressed in the context of broader

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[1] According to the Department of State, the completed agreement with Indonesia is awaiting ratification by the Indonesian parliament, while the other three have entered into force.

[2] An agreement with Iran was negotiated and initialed in July 1978. Action on it was suspended following Iran's change of government.

[3] In commenting on our draft report, the Department of State noted that under established U.S. Government procedures (11 FAM 722.1) "negotiations" include "any exploratory discussions undertaken with representatives of another country." For example, under this standard, the Department made a determination, pursuant to the NNPA, that the U.S.-EURATOM discussions are "negotiations." However, it should also be noted that EURATOM has indicated it has yet to enter into what it would consider "negotiations."

Status of U.S. Efforts To Renegotiate Unrevised Agreements

Cooperating Partner	Status of U.S. Effort
Argentina	Discussions begun October 1978. Limited informal discussions since then. (note a)
Austria	Discussions held June 1978. Suspended
Brazil	Discussions begun June 1978. Informal discussions since then. (note a)
EURATOM	Limited discussions (non-INFCE topics prior to the INFCE final report) begun November 1978.
Finland	Negotiations in progress.
India	"Special problems" involved. Nuclear cooperation addressed "in the context of broader discussions."
Japan	Negotiations in progress.
Korea, South	Discussions begun September 1978.
Norway	Negotiations completed. Draft initialed May 1979. Awaiting transmittal to the President for review and signature.
Philippines	Discussions held May 1978 and May 1979. Further discussions deferred.
Portugal	Discussions held September and October 1978.
South Africa	"Special problems" involved. Nuclear cooperation addressed "in the context of broader discussions."
Spain	Discussions begun March 1978. Limited discussions in progress. (note a)
Sweden	Negotiations in progress.
Switzerland	Discussions held May 1979.
Taiwan	Discussions held during 1979 and 1980 (non-governmental).
Thailand	Discussions held October 1978.
Turkey	Discussions held and then deferred pending conclusion of INFCE. Draft provided by the United States in October 1980.

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a/Discussions are limited to assurances needed to permit continued cooperation under the existing agreement in conformity with Title III's export licensing criteria.

SOURCE: Department of State as of January 1981 discussions with these countries." Discussions with the remaining nation, Austria, were suspended following an Austrian referendum that halted plans for its first power reactor.

Prospects appear limited for the renegotiation of additional agreements in the near future and it is unlikely that more than a few will be sent to the Congress in upcoming months. This assessment was confirmed by executive branch officials. However, some U.S. officials indicated that 12 U.S. partners with unrevised agreements already meet and exceed the one major new NNPA requirement for agreements--*de facto* full-scope safeguards--and have already given the United States prior consent rights over the retransfer and/or reprocessing of U.S.-supplied material. Furthermore, these officials stated that two other provisions that would be included in renegotiated agreements--physical security guarantees and controls over sensitive nuclear technology--are already applicable, to some degree, to all U.S. nuclear cooperation.

Foreign reluctance to renegotiate existing agreements

As the slow progress of the renegotiation effort suggests, there has been a general foreign reluctance to renegotiate. The response has not been completely negative, and some executive branch officials believe that certain nations may have now shifted to a more positive position. Nevertheless, the executive branch has reported to the Congress that the overall negotiation situation is "mixed" and, despite some progress, "persistent problems" have arisen and become "increasingly visible."

The nature, cause, and intensity of the response varied from one partner to another. However, aspects of foreign reluctance to renegotiate can be summarized as follows.

--Some nations were concerned about prior consent rights over reprocessing sought by the United States. Others wanted to determine the manner in which the United States intended to exercise the prior consent rights it had and those it was seeking.

--Some were hesitant to conform with what they perceived as a unilateral U.S. attempt to revise the rules for cooperation.

--Some deferred renegotiation until after INFCE, possibly in hope that INFCE would support reprocessing and thus strengthen their position.

--Some preferred to wait until the United States had concluded revised agreements with other nations.

--Some did not agree with the U.S. position regarding full-scope safeguards.

The EURATOM agreements

The most prominent case of foreign reluctance to renegotiate involves EURATOM. The United States and EURATOM entered into three complementary agreements for nuclear cooperation in 1958, 1959, and 1960. The agreements were not typical because they did not give the United States prior consent rights over the reprocessing of all spent U.S.-origin fuel. In contrast, however, Title III bans nuclear exports to nations or groups of nations that do not grant the United States such prior consent rights. 1/

Title III provides an exemption for EURATOM. 2/ If EURATOM had agreed within one month of the NNPA's enactment to renegotiate its agreements, pursuant to Title IV, exports could have continued until March 1980. Moreover, the President is empowered by Title III to grant subsequent 1-year extensions of the exemption, subject to congressional veto.

EURATOM declined the exemption and refused to agree to renegotiate. As a result, U.S. nuclear exports to EURATOM were cut off. In July 1978, EURATOM agreed to "discuss" the agreements if certain conditions were met. Topics covered by INFCE (such as reprocessing) were to be included only after INFCE had completed its work. Furthermore, INFCE's conclusions were then to be taken into account in the discussions. The executive branch decided to accept the EURATOM offer. Exports resumed, and initial discussions regarding the agreements were held in November 1978.

The principal reason for EURATOM's reluctance to renegotiate appears to have been an already existing disagreement with the U.S. position on commercial reprocessing. EURATOM apparently decided that it would be inappropriate to renegotiate its agreements without the existence of a greater degree of consensus with the United States on reprocessing.

1/Title III also requires prior U.S. approval for retransfers of U.S. nuclear exports. Although this has been cited by some observers as a possible factor in the U.S.-EURATOM discussions, U.S. policy is to treat EURATOM as a single entity. Thus, prior approval rights for intra-EURATOM transfers does not appear to be an issue in the discussions.

2/The exemption applied to IAEA as well, whose agreement also lacked the necessary U.S. prior approval rights. Unlike EURATOM, IAEA promptly took advantage of this provision and soon negotiated an amendment to its agreement.

Nevertheless, the U.S. call to renegotiate the agreements appears to have aggravated the situation. First, under Title IV the renegotiation sought by the United States would have involved more than U.S. prior consent rights over spent U.S.-origin fuel. The President was required by the NNPA to seek retroactive application of U.S. prior consent rights over the reprocessing of not only spent U.S.-origin fuel but also any fuel irradiated in a U.S.-origin reactor. [1] Second, the Europeans objected to the unilateral nature of the NNPA and appear to have been insulted by the temporary suspension of nuclear exports.

In February 1980, INFCE ended and the President extended the EURATOM exemption for an additional year. However, as of February 1981, EURATOM had still not agreed to enter into what it would consider negotiations and the President again extended the exemption. The question of U.S. prior consent rights over reprocessing apparently remains a key point dividing the United States from its allies in EURATOM.

Executive branch officials generally agreed that U.S.-EURATOM relations had suffered because of the controversy. Some did not believe that the nuclear export ban provision had been helpful in encouraging renegotiation, a belief apparently supported by the fact that EURATOM has never formally agreed to renegotiate. These officials noted that the NNPA requires the President to annually consider whether to extend the exemption and suggested that this procedure is nothing more than a continuing irritation in U.S.-EURATOM relations.

Other nations may be waiting for a resolution of the U.S.-EURATOM renegotiation question before conclusively revising their own agreements with the United States. If so, it is likely that these nations would try to obtain comparable terms in subsequent negotiations with the United States, using the new EURATOM agreements as a precedent.

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[1] It must be pointed out that, although Title IV requires the President to "vigorously seek" to obtain retroactive application of new controls in renegotiating agreements, retroactivity is not a criterion in and of itself. For example, the revised IAEA agreement does not provide for retroactive application of the new conditions to previously transferred material. Executive branch officials assert that they sought to obtain retroactive application but that they were unsuccessful.

Response of potential new partners

The response of nations seeking to initiate nuclear cooperation with the United States appears to have been more positive, although executive branch officials point out that negotiations of new agreements are not necessarily easier to conduct than renegotiations of existing ones. Potential partners have indicated concern regarding U.S. controls over the reprocessing of spent U.S.-supplied fuel and fuel irradiated in a U.S.-supplied reactor, even if reprocessing is, at best, many years ahead in their future. These nations have also been sensitive to the perceived intrusions on their sovereignty that they believe arise in the negotiation of new agreements. The fact that agreements are subject to future changes in U.S. law also disturbs some potential partners.

Agreements with two nations seeking to initiate cooperation with the United States have been negotiated and reviewed by the Congress since the NNPA's enactment. The nations involved, Peru and Morocco, are both NPT parties. The United States has recently initialed draft agreements with Bangladesh and Egypt. A proposed agreement with Colombia (whose previous agreement expired in 1977) has been signed and was submitted to the Congress on January 15, 1981.

Executive branch officials did not identify any nation that had decided to forego cooperation after examining the new U.S. conditions. It may be worth noting, however, that Israel initialed a draft agreement in 1976. The agreement was not signed prior to the passage of the NNPA, and the United States presented a revised version to Israel in May 1979. According to the executive branch, Israel, which operates an unsafeguarded nuclear facility believed capable of producing 6 kilograms of plutonium a year, subsequently informed the United States that it did not wish to conclude an agreement "at this time."

POST-NNPA AGREEMENTS GENERALLY COMPLY WITH TITLE IV

The agreements reviewed by the Congress since March 1978 are generally in accord with the Title IV criteria and include some important new features that should enhance U.S. controls. However, the agreements include a degree of reciprocity, and the possibility exists that difficulties involving foreign prior consent rights could arise.

Compliance with Title IV

ACDA is required by the NNPA to provide the Congress with a nuclear proliferation assessment statement for each new or revised agreement for cooperation. In regard to each of the post-NNPA agreements that have been reviewed by the Congress, ACDA concluded that the legal requirements had been met and that the safeguards and other control mechanisms provided were adequate. We reviewed several of these agreements and generally agree that they appear to be in substantial compliance with the Title IV criteria.

In negotiating agreements, the President is also required to "endeavor" to provide for cooperation in protecting the international environment from contamination resulting from peaceful nuclear activities This is not included among the criteria to be met by all proposed agreements.

Most of the post-NNPA agreements provide for such cooperation, although concerns have been expressed regarding the language used in the agreements with Australia and Canada. However, U.S. officials stated that in these cases they had attempted to include more specific language. According to executive branch reports to the Congress, some nations objected to aspects of the environmental cooperation provision and did not want it included in the agreements. The revised agreement with IAEA contains no such provision because the executive branch believes the Act's intent is met by the health, safety, and environment provisions of the IAEA Statute. The remaining agreements contain environmental cooperation provisions that are more detailed than those in the Australian or Canadian agreements.

Benefits

The post-NNPA agreements contain new features that should result in some enhancement of U.S. controls over nuclear cooperation. For example, the requirement that IAEA safeguards be maintained on all nuclear materials in a non-nuclear weapon nation should help assure the United States that such cooperating partners are not developing nuclear explosives involving non-U.S.-origin materials. Furthermore, it brings U.S. agreement standards in closer alignment with the obligations accepted in principle by the 112 non-nuclear weapon nations party to the NPT, thus narrowing the gap between the safeguards obligations imposed on those U.S. cooperating partners that are NPT parties and those that are not. Of course, safeguards on all nuclear materials cannot guarantee against proliferation, and are not required by all nuclear suppliers.

Another potential benefit of the new agreements involves the expanded scope of U.S. prior consent rights. The United States will have the ability to disapprove, if necessary, the reprocessing of foreign-supplied fuel irradiated in a U.S.-origin reactor. Used properly, these rights will help assure the United States that the fissionable materials in such fuel will not be used in nuclear explosive devices.

Reciprocity

Reciprocity involving prior consent rights and full-scope safeguards was incorporated in the revised agreements with Canada and Australia. U.S. officials maintained that the United States had no choice but to do so if it wished to continue cooperation with Canada and Australia; these two uranium-producing nations require their partners to grant prior consent rights and to accept full-scope safeguards.

Although both nations have accepted the US-IAEA safeguards agreement as fulfillment of their safeguards criteria (see p. 50), compliance with the Australian and Canadian prior consent rights requirements could conceivably result in complications for the United States. For example, if, in the future, the United States wished to reprocess material received from either nation, it would first have to obtain Australian or Canadian permission. 1/

Reciprocal prior consent rights were also granted to Peru, Morocco, and Indonesia to make the requirement for U.S. prior consent rights more acceptable. Executive branch officials indicated that the United States is unlikely to import nuclear-related materials from these nations.

LIMITED PROGRESS IN ADOPTING COMMON NUCLEAR EXPORT POLICIES

Title IV specified several proposed common nuclear export policies and required the President to seek the adoption of these policies by other nations. However, progress has been limited and none have been fully adopted by the world community.

The executive branch did not establish a specific program to advance adoption of the policies, nor did it call for a reconvening of the 15-member Nuclear Suppliers Group, which in 1977 decided to permit publication of a set of limited export guidelines. In fact, the Group has not met since 1978.

Some executive branch officials believe that a formal multinational effort to adopt common export policies would be premature at this point because disagreement exists among nuclear suppliers on this matter. These officials believe that concerted U.S. efforts to secure adoption of these common export policies would have to be preceded by a broader international acceptance of the U.S. approach to limiting proliferation. They also note the hostility of some nuclear recipient nations to the Group.

According to U.S. officials, the executive branch conducted bilateral talks with suppliers to promote common export policies, although those talks apparently did not focus exclusively on

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1/Australia has outlined conditions under which it would consider granting such approval in advance. (See p. 73.)

this issue. The executive branch also tried to secure the 1980 NPT Review Conference's endorsement of full-scope safeguards as a precondition for future nuclear supply commitments to any non-nuclear weapon nation, regardless of its NPT status. However, this attempt to advance one of Title IV's proposed common export policies was unsuccessful.

The United States was successful in efforts to advance adoption of common physical protection standards for nuclear materials in international transit. The recently concluded Convention on the Physical Protection of Nuclear Material is an important step towards fulfilling some of the goals in Title IV's common export policies. (See p. 49.)

Annual presidential review and results

The President was directed by Title IV to review annually the agreement criteria and the specified common export policies, to determine whether any should be applied as additional export licensing criteria. If the President so determined, he was to then submit the proposed addition to the Congress.

In his non-proliferation reports to the Congress in 1979 and 1980, the President asserted that efforts to expand or make more stringent the NNPA export licensing requirements would be counterproductive and would undermine U.S. efforts to renegotiate existing agreements for cooperation. Therefore, the President did not propose that any of the common export policies or agreement criteria be applied as additional U.S. export licensing criteria. In the 1981 report, the President noted that modifications of U.S. law and policy might be necessary, but he did not propose any specific changes.

CONCLUSIONS

Although the foreign reaction to the renegotiation effort appears to have been one of reluctance, we believe that the United States should continue to explore the possibility of renegotiating existing agreements, when appropriate, and to continue to require that agreements with new partners meet the NNPA criteria. Title IV has resulted in a number of agreements with improved controls, and we believe such results are worth seeking.

We also believe the renegotiation effort should be built on the concept of mutual interest and conducted in a manner that is sensitive to the attitudes and needs of cooperating partners. Furthermore, it should be noted that Title IV allows the President flexibility to exempt a proposed agreement from compliance with any of the criteria, subject to congressional review.

In our opinion the United States can continue to honor existing agreements. We note that (1) exports under an unrevised agreement are scrutinized under Title III's export licensing criteria, (2) Title IV does not provide a deadline for completing renegotiations, and (3) Title IV specifies that the authority to continue cooperation under an existing agreement is not affected by the new criteria.

We believe the requirement that the President annually decide whether to extend the exemption allowing nuclear trade to continue with our European allies may be an irritant that serves no useful purpose. The EURATOM case suggests that unilateral U.S. nuclear export bans may be of limited use in bringing reluctant cooperating partners to the negotiating table.

The renegotiation effort has been hampered to some degree by foreign concerns about how the United States would exercise its prior consent rights over reprocessing. Thus, forming new U.S. policies governing the exercise of these rights could facilitate renegotiation of agreements. The need for such policies is discussed in chapter 5.

Although the results of the renegotiation effort have been limited, we recognize that international negotiations and discussions concerning nuclear cooperation can be long and arduous and that conditions may not have been conducive to an early completion of the renegotiation effort. Moreover, we recognize that the emergence of a post-INFCE consensus on reprocessing and other issues could take considerable time and that U.S. efforts to renegotiate all existing agreements to conform with Title IV could thus continue to be hampered. Developing such a consensus may involve modifications to the U.S. non-proliferation strategy, which could affect the renegotiation effort.

Some observers have suggested eliminating or extensively modifying the renegotiation provision of Title IV. We do not believe that this is necessary or desirable at this time because of the following factors.

--The majority of U.S. cooperating partners with unrevised agreements are already in compliance with Title IV's de facto full-scope safeguards criterion and have previously agreed to prior U.S. consent rights for reprocessing and retransfer of U.S.-supplied materials.

--Renegotiation is not a requirement but a goal. Except for EURATOM, foreign partners refusing to commit themselves to renegotiations have not faced a ban on exports pursuant to Title IV. Moreover, we are recommending a change in the Act in regard to EURATOM.

--Eliminating the renegotiation provision could reinforce the foreign perception that U.S. policy is subject to sudden shifts.

--Stopping the effort could be an awkward problem for U.S. relations with those nations that have revised or are revising their agreements.

--According to some executive branch officials, the damage caused by the renegotiation effort may have already occurred, and stopping the effort would not necessarily correct such damage.

Progress in promoting the specified common export policies called for by Title IV has been limited, and none of the policies have been fully adopted by the world community. Wider acceptance of the underlying U.S. approach to limiting proliferation appears to be a prerequisite for progress in this area. However, the United States should continue to seek acceptance of upgraded common nuclear export policies. Establishing such policies would represent a major step in controlling the risk of proliferation and could limit the need for unilateral action in the future. Furthermore, until upgraded policies are widely adopted, those nations that exercise strict non-proliferation export controls may be at a commercial disadvantage when selling to buyers who prefer fewer restrictions.

It seems questionable whether there is a need for an annual presidential review of the NNPA's agreement criteria and proposed common export policies to determine whether any should be applied as U.S. export licensing criteria. This procedure does not add to the President's powers and may contribute to foreign concerns that U.S. nuclear export policies may become more stringent at any time.

RECOMMENDATIONS TO THE CONGRESS

The Congress should eliminate the need for an annual extension of the exemption to certain export licensing criteria provided to EURATOM by amending section 304(a) of the NNPA.

The Congress should also amend section 404(b), (c), and (d) of the NNPA to eliminate the annual presidential review of Title IV's agreement criteria and proposed common export policies to determine whether any should be applied as export licensing criteria.

In this connection, see sections 5(b) and 8 of our draft bill in appendix VIII.

CHAPTER 7

TITLE V COULD BE DELETED WITHOUT NON-NUCLEAR ENERGY ASSISTANCE BEING AFFECTED

Title V of the NNPA calls on the United States to assist developing nations, especially NPT parties, to identify and develop non-nuclear energy alternatives, with emphasis on solar and other renewable energy resources. The United States has been providing support and funds for programs to help developing nations meet their energy needs for a number of years. However, no funds have been appropriated or allocated for Title V programs. Additionally, Title V has not been used as justification for any ongoing or planned programs. 1/

Executive branch officials feel that the intent of Title V is being met through programs authorized under other legislation and that Title V is superfluous. Individuals in the private sector have indicated that inserting provisions calling for non-nuclear energy assistance in the NNPA is viewed by some observers as an anti-nuclear statement within an overall nuclear policy.

Helping developing nations evaluate their energy alternatives and establish programs to use the most promising resources may be a laudable goal. However, the need for retaining Title V appears dubious.

EXISTING PROGRAMS PROVIDE NON-NUCLEAR ASSISTANCE

Several events relating to petroleum, nuclear power, and traditional energy use coincided in the 1970s, elevating the importance of the energy issue, changing and complicating U.S. organizational involvement in developing-nation energy issues, and making clarification of U.S. assistance policy essential. The events included the

--oil embargo in 1973 and subsequent price increases, and the awareness of possible future shortages of oil;

1/Our review, "U.S. Energy Assistance to Developing Countries: Coordination and Clarification Needed" (ID-80-7, March 28, 1980), discussed Title V in relation to other U.S. activities and concluded that there was a need for a comprehensive U.S. energy assistance policy, clarification of the roles and relationships of the agencies involved, and better coordination among these agencies and international organizations.

--recognized potential for civil nuclear power activities to be subject to accidents and use in weapons programs; and

--shortages of traditional energy sources and environmental degradation resulting from accelerated use.

These events roughly coincided with, or led to, several changes in U.S. energy assistance activities in developing nations carried out under the AID programs. Also, in 1977, a DOE-managed, national energy-assessment program called the International Energy Development Program (now referred to as the Country Energy Assessment Program) was initiated, in part, to help selected developing nations avoid premature and/or excessive commitments to civil nuclear power. The U.S. Export-Import Bank, the Overseas Private Investment Corporation, the Departments of Agriculture and the Interior, the International Communication Agency, the National Aeronautics and Space Administration, the National Science Foundation, and the Peace Corps also help developing nations meet their energy needs.

In 1978, the United States supported initiatives at the Bonn Economic Summit to encourage the coordination of renewable energy assistance activities and the expansion of energy assistance. In January 1979, the United States voted to expand a World Bank program to develop natural gas and petroleum. More recently, a new U.S. organization, the International Development Cooperation Agency, was established to place U.S. overseas economic-development activities, including energy (but excluding energy technology cooperation), under the guidance of a single agency.

The United States also participates in the energy activities of many international organizations, such as the Organization for Economic Cooperation and Development and the International Energy Agency, the United Nations organizations, and the North Atlantic Treaty Organization Committee on Challenges of Modern Society.

In summary, the United States has been involved in a variety of cooperative energy projects with other nations for some time. The United States provided about $109 million in fiscal year 1980 for energy assistance to developing nations. The largest share of this assistance, about $75.6 million, was funded by AID. DOE was next, with $16.2 million.

In addition, the United Nations system has been carrying out a variety of energy related projects. In the 1978-1979 biennium, the United Nations system sponsored 400 non-nuclear energy projects costing an estimated $81 million.

TITLE V HAS NOT BEEN IMPLEMENTED

Helping developing nations find attractive alternatives to nuclear power was conceived as a means to retard proliferation. Nuclear materials that are not present in a nation can neither be diverted by that nation nor stolen by subnational groups. With this in mind, the Congress enacted Title V which directs the United States to endeavor to cooperate with other nations, international institutions, and private organizations to assist in developing non-nuclear energy resources. The Government was also to cooperate with developing and industrialized nations in protecting the international environment from contamination from both nuclear and non-nuclear energy activities. It was to seek to cooperate with and aid developing nations in meeting their energy needs by developing non-nuclear resources and applying non-nuclear technologies consistent with economic factors, the material resources of those nations, and environmental protection. Additionally, the United States was to encourage other industrialized nations and groups of nations to undertake similar cooperation with developing nations. In support of these objectives, the NNPA authorized a three-fold program for U.S. cooperation with developing nations to

--meet their energy needs for continued development,

--reduce their dependence on petroleum by emphasizing solar and other renewable energy resources, and

--expand the energy alternatives available to such nations.

In cooperating with, and providing such energy assistance to, developing nations, Title V requires that the United States give priority to NPT parties.

The program was to include cooperation in evaluating the energy alternatives of developing nations, facilitating international trade in energy commodities, developing energy resources, and applying suitable energy technologies. Energy assessments both general and for specific nations, and cooperative projects in resource exploration and production, training, and research and development were authorized. DOE was to arrange for the exchange of U.S. scientists, technicians, and energy experts with those of developing nations. Moreover, by March 10, 1979, the President was to have reported to the Congress on the feasibility of expanding this bilateral cooperation into an international cooperative effort which would include creation of a scientific peace corps. This report has not yet been submitted, but on February 20, 1981, an OMB official advised us that it will be prepared expeditiously after the new administration reviews the U.S. non-proliferation strategy.

Origins of Title V

Title V of the NNPA, "United States Assistance to Developing Countries," first appeared as an amendment to a Senate bill called the Nuclear Non-Proliferation Act of 1977. The amendment was added by the Senate Committees on Foreign Relations and Governmental Affairs because, as they reported:

> "Title V stems from the recognition that the first step in any non-proliferation strategy aimed at developing countries should be to cooperate with and aid such countries in identifying non-nuclear alterratives for meeting their energy needs. In general, countries that can meet their energy requirements through indigenous, non-nuclear resources should be encouraged to do so consistent with environmental considerations. Past U.S. policies have emphasized nuclear energy--a natural consequence of our commitment to spread the benefits of nuclear power throughout the world and to fulfill Article IV of the NPT which calls for the fullest possible exchange of nuclear technology with due consideration for the needs of developing countries.
>
> "Title V is designed to balance these policies by offering cooperation and assistance in developing indigenous non-nuclear energy technologies, with priority being given to NPT parties. In addition to the contribution which these efforts would make to non-proliferation, such assistance will promote political and economic stabilization in developing countries through reduction of their dependence on foreign oil and highly capital-intensive technology, and will accelerate the availability and utilization of renewable energy technology (i.e., solar and biomass) with accompanying technological improvements." (Emphasis added.)

During congressional deliberations on the NNPA, the executive branch position on Title V was:

> "The Administration is wholly committed to the purposes of this title but believes that all necessary authority to carry out its programs already exist. The Administration intends to make vigorous use of this authority and does not believe that Title V enhances its ability to implement such programs. We therefore urge deletion of this Title."

Status of Title V

Although Title V was included in the NNPA, executive branch officials indicate that it has not been implemented. The Congress has neither pressed the executive branch to implement Title V nor appropriated any funds for it. Furthermore, the executive branch has not allocated any funds contained in other appropriations to implement Title V.

While no specific program has been initiated under Title V provisions, U.S. officials cite the ongoing programs described in the previous section of this chapter as meeting its intent. None of the activities, however, were initiated, funded, or justified as Title V programs.

Executive branch officials have repeatedly said Title V is not needed, that everything being done to help developing nations with their energy programs can be justified without Title V, and that no new programs are needed to supplement or replace ongoing programs in the area.

DOE and AID, the principal agencies involved in providing non-nuclear energy assistance to developing nations, cite other legislative authorities for such programs, including: the Foreign Assistance Act of 1961, as amended; the Department of Energy Organization Act of 1977; the Energy Reorganization Act of 1974; and the Atomic Energy Act of 1954, as amended. Some agency officials, therefore, believe that Title V is duplicative and could be deleted. However, a few U.S. officials expressed the concern that elimination of Title V might signal a change in the U.S. policy or a wholesale endorsement of, and commitment to, worldwide nuclear energy.

During our review we learned that, although ongoing programs are generally fulfilling the intent of Title V, some specific aspects of this title are not routinely being met. For example, priority is not being given to NPT parties as required by Title V. Agency officials advised us that NPT status is generally not considered. Some added that, if such energy assistance were designed to reduce proliferation risks, it would be misguided if those who have already rejected the nuclear weapons option were to be given priority. In addition, while Title V specifically calls for U.S. cooperation to reduce developing nations' dependence on petroleum, with emphasis on renewable energy resources, many ongoing programs emphasize developing indigenous oil and gas supplies or are related to other non-renewable energy projects.

Some individuals in the private sector contend that totally excluding nuclear power from any U.S. cooperative assessment of a nation's energy alternatives may be viewed by developing nations as anti-nuclear and as a U.S. attempt to limit their access to the potential benefits of nuclear energy already being used in the United States.

Access to such peaceful nuclear technologies was assured to those who became party to the NPT. U.S. nuclear industry representatives add that developing nations represent the largest potential market for U.S. exports of nuclear goods and services.

CONCLUSIONS

Title V of the NNPA reaffirms the U.S. commitment to provide energy assistance to developing nations. However, as a practical matter, it has never been implemented. The executive branch has not allocated any funds for the title or for any programs which could have been established under it. They also generally agree that eliminating Title V would have no effect, since it has not been implemented. Moreover, the Congress has not pressed the executive branch toward implementing Title V.

A few agency officials, however, have expressed concern that elimination of Title V might signal a change in the U.S. policy of assistance or a wholesale endorsement of and commitment to, worldwide nuclear energy. If Title V were to be eliminated from the NNPA, they would want to ensure that other legislation supports continuing non-nuclear assistance to developing nations. As noted above, the United States has been assisting developing nations to develop alternative energy sources for a number of years.

RECOMMENDATION TO THE CONGRESS

The Congress should delete Title V from the NNPA. We are not recommending that the policy of providing non-nuclear energy assistance to developing nations be discontinued but believe it may be inappropriately placed in the NNPA.

See section 9 of our draft bill in appendix VIII.

CHAPTER 8

VARIOUS FACTORS INFLUENCE ADVERSE FOREIGN REACTION TO U.S. NON-PROLIFERATION STRATEGY

The U.S. non-proliferation strategy is part of the broader U.S. goal of world peace and international security. International cooperation is the key to the United States' achieving its goal to limit the spread of nuclear weapon capabilities. The non-proliferation issue involves broad domestic and foreign energy decisions; interrelates with foreign affairs and national defense policies; concerns important international political commitments; and involves sophisticated equipment and technologies. Thus, international reaction must be considered in assessing the probable success of the U.S. non-proliferation strategy.

The NNPA generally received much greater negative foreign reaction than anticipated. Major nations have criticized the law as (1) infringing on nations' sovereign rights, (2) keeping nations from developing energy independence, (3) attempting to slow foreign progress in certain technologies while the United States catches up, (4) continuing to act as "Big Brother" over the nuclear have-not nations, (5) trying to impose "unilateral" and "retroactive" conditions, (6) acting to weaken or discredit the Non-Proliferation Treaty, by imposing requirements beyond its own, and (7) placing undesirable controls over reprocessing, despite the perceived future importance of plutonium in generating power.

Initial reactions may not indicate the NNPA's eventual impact abroad because international initiatives often require much longer periods before completion and acceptance. Nevertheless, it may become increasingly difficult for the United States to overcome a continuing resistance to the U.S. non-proliferation strategy.

INDIVIDUAL NATION CIRCUMSTANCES AFFECT REACTION

Certain nations will probably influence worldwide reaction to the U.S. non-proliferation strategy. We selected 12 such nations 1/ for one or more of the following reasons: (1) it is a major supplier of nuclear material and equipment; (2) it has made a large domestic investment in nuclear energy; or (3) it was considered by some as a potential weapons proliferator. Our

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1/Argentina, Australia, Brazil, Canada, West Germany, France, India, Japan, Pakistan, South Korea, Spain, and the United Kingdom.

analysis was nation-specific because we believe that individual circumstances and motivations determine reactions to U.S. policies. Furthermore, an assessment of foreign reactions is complicated because it involves security, political, technical, and economic factors which transcend the domestic nuclear energy issue. The sources of our information are discussed in chapter 1.

Argentina

Argentina disagrees with the U.S. approach to control proliferation, especially the limits on the commercial use of plutonium. Argentina, which is seeking an independent nuclear capability, believes in the nondiscriminatory access to nuclear technology and criticizes supplier-imposed conditions and restraints.

Argentina, to become self-sufficient in all phases of the nuclear fuel cycle, recently decided to purchase a heavy water production plant from Switzerland and a heavy water nuclear reactor from West Germany.

U.S. and Argentine disagreements over nuclear policy about the use of plutonium center on the technical issues of deferring reprocessing and transferring heavy water production technology. However, such technical concerns can become significant political issues because Argentina perceives the U.S. policy of denying nuclear sophistication as limiting the growth and prosperity of less developed nations.

International status, especially vis-a-vis Brazil, also influences Argentina's reactions. The Argentines are concerned about Brazil's potential nuclear capabilities and intend to maintain a parity with Brazil. This desired equilibrium has influenced Argentina's interest in reprocessing and its expressed interest in the possibility of peaceful nuclear explosives.

Australia

The NNPA is similar to Australia's non-proliferation policy. In fact, Australia has more stringent controls on nuclear exports. However, Australians are concerned that the U.S. non-proliferation policy is too unilateral. They believe the United States should rely more on the IAEA, not on U.S. influence and controls.

Australia's support of U.S. non-proliferation policy is influenced by its

--abundant supply of non-nuclear energy resources,

--stringent nuclear export policy, and

--interest in establishing a multinational uranium enrichment plant in Australia.

Australia and the United States have concluded a revised agreement for cooperation. The agreement places international safeguards on uranium shipped from Australia to the United States.

Brazil

Brazil's plans to develop a complete and independent nuclear industry by acquiring enrichment and reprocessing capabilities are in conflict with U.S. non-proliferation efforts.

Brazilians feel that U.S. policy discriminates against developing nations that have not yet developed nuclear energy, while favoring nations with nuclear programs. This, in their opinion, reinforces the dominance of North over South globally.

Brazil seeks to develop capabilities for a complete nuclear fuel cycle which would help achieve energy independence, and therefore reacts negatively to some controls on the international transfer of nuclear energy technologies. Economic development is considered essential to Brazil's expected world power status. External control on technology transfers in general cause Brazilians concern about discriminatory treatment, because they believe science and technology are essential for their economic development. Consequently, acquiring enrichment and reprocessing technologies has significant political implications.

Additionally, Brazilians believe that the reprocessing capabilities of other non-nuclear weapon nations (i.e., West Germany and Japan) are, in large part, the result of U.S. cooperation and assistance, and/or transfer of technology. German willingness to let Brazil help construct nuclear power plants and to provide technology transfers were factors in Brazil's awarding the contract to a German firm, instead of a U.S. firm.

Consequently, Brazil believes that its goals of being treated equally with other nations and economic development are equally important to the goals of non-proliferation.

Canada

Canada is considered to be most closely aligned with the United States in non-proliferation matters. The renegotiation of the U.S.-Canada nuclear agreement for cooperation has been concluded. Canada generally endorses U.S. nuclear export controls and has similar--although somewhat more restrictive--policies. Canada, however, is sensitive to policies that affect its commercial nuclear position.

Canada is in the forefront to require more strict non-proliferation standards. Canadian interest in controlling proliferation intensified in 1974 after India, using Canadian and other technology, exploded a nuclear device. As a result, nuclear cooperation was suspended with India and new safeguards requirements were applied to Canadian nuclear exports. In 1977, Canada began to withhold uranium exports from non-NPT nations and those that did not have full-scope safeguards agreements with the IAEA.

West Germany

Germany disagrees with what it perceives to be an aspect of U.S. policy--that non-proliferation is more important than continued development of nuclear power. Germans believe that the two goals are equally important.

Although some Germans believe U.S. policies have stimulated worldwide concern about the problem, they have reservations about accepting the U.S. strategy for controls. The principal concerns are the issues of reprocessing and development of the breeder reactor, the impact on their nuclear export market, and the implications on the reliability of their energy supplies.

Germany is advanced in many nuclear areas and does not want to be discriminated against as a non-nuclear weapon nation. Some Germans feel they are being penalized for the modest and sensible pace of their nuclear program and for restraint in developing advanced technologies, even though their competence is equal to that of most nuclear weapon nations. Additionally, Germany has invested a great deal in its nuclear industry, which has been unable to maintain its growth rate and blames the United States, at least in part.

The negative German reaction to some U.S. policies was, in part, caused by the unilateral nature of the U.S. policies. This reinforced the feeling that began in 1974 wher the United States stopped taking new orders for enrichment services, an action viewed by Germans as capricious.

Germans hope that the United States will not try to impose upon them the U.S. decisions to store spent fuel and postpone commercial reprocessing indefinitely. Germans also hope that the United States will not oppose all thermal recycling of plutonium.

France

France is convinced the U.S. approach is not the most effective strategy for limiting proliferation. French reactions are influenced by its domestic commitment to nuclear energy, the financial investment and prestige associated with its breeder and reprocessing programs, and its nuclear export program. Moreover, French national pride as an independent sovereignty able to resist U.S. pressure and its role in EURATOM and the European Economic Community, affect French reactions to U.S. non-proliferation policies.

One French official stated that French reaction to the U.S. non-proliferation policy cannot be isolated from overall U.S.-French relations. In this context, France and the United States are good allies and try to cooperate with each other as much as possible. However, he said the French have the following major problems with the U.S. policy.

- --The United States has not given adequate attention to the energy needs of other nations. They believe true non-proliferation policies should seek to alleviate tensions and world insecurity by developing energy security.
- --A strategy of technology denial may push nations toward developing their own technology.
- --France believes a nation wishing to manufacture nuclear weapons would do so through a dedicated facility, not a commercial plant.

France seems prepared to accept many parts of U.S. policy. It apparently has no plans to recycle fuel for light water reactors and has announced that it will withhold reprocessing technology from other nations. However, it will not forego its domestic breeder development program or its reprocessing program.

India

India, which is virtually free of the need for foreign assistance to produce nuclear power, has stated that it opposes vertical and horizontal proliferation. But Indians do not accept the U.S. means to pursue these goals and criticize the United States for not limiting its own nuclear arsenal.

India believes that the U.S. policy of insisting on full-scope safeguards for only non-nuclear weapon states is discriminatory. The Indians view the demands and safeguards requirements on domestic facilities as violations of national sovereignty. In addition, the Indian Government has charged that U.S. attempts to enforce these demands by denying enriched uranium to the Tarapur Atomic Power station would constitute a unilateral American violation of the 1963 Indo-U.S. international agreement on nuclear cooperation. Although some shipments of uranium have been approved, recent NRC, presidential, and congressional debate and actions demonstrate the dynamic and sensitive nature of this situation. (See pp. 197-198.)

Over the past 10 years, Indian national pride has become heavily involved in the issue of discrimination with respect to international nuclear non-proliferation. Therefore, acceptance of full-scope safeguards could become a sensitive domestic political issue.

Many Indians doubt that the U.S. strategy to deter the spread of plutonium technology can work. They believe that any setback in their development and use of nuclear power, particularly the breeder reactor, would impede efforts to become energy independent.

Japan

Japan, as the only nation to have undergone the tragedy of an atomic bombing, has a strong commitment to preventing nuclear proliferation. Nevertheless, Japan has intense concerns about some aspects of U.S. non-proliferation policy.

Some Japanese believe that U.S. policy implicitly discriminates against Japan as a non-nuclear weapon nation. Japan considers some provisions of the NNPA to be onerous, unilateral, and counterproductive to achieving non-proliferation.

Japan looks to nuclear energy to become energy independent. Some Japanese believe that the United States, with its indigenous energy supplies, can afford to promote non-proliferation over nuclear energy. The Japanese believe they cannot pursue the same course. Japan's reactions may be influenced by its (1) perceived need to decrease dependence on imported energy resources by acquiring all facets of the nuclear fuel cycle, (2) desire to be treated in a nondiscriminatory manner in nuclear development, (3) trade relations and imbalances with the United States, and (4) concerns about national security and the stability of the East Asian region.

Japan is also concerned that U.S. cooperation with Japan be on no less favorable terms than U.S. cooperation with European nations.

Pakistan

The NNPA has had little relevance for Pakistan since it no longer has a nuclear agreement for cooperation with the United States. However, Pakistani attempts to acquire reprocessing and enrichment capabilities conflict with the thrust of U.S. policy. Pakistan believes there will be a need for the breeder reactor and therefore, reprocessing.

Not only does the United States not have a nuclear agreement for cooperation with Pakistan, but, in April 1979, the United States cut off military and economic assistance because of Pakistani imports of nuclear enrichment equipment and material. (See p. 20 for legal authority.) However, in the wake of the Soviet invasion of Afghanistan, the United States renewed its offer of such assistance. In spite of this, there seems little chance of Pakistan accepting the U.S. policy.

Pakistan has proclaimed support for nuclear non-proliferation and for the idea of a nuclear weapon free zone in South Asia. However, it will not institute full-scope safeguards or adhere to the NPT until India does. Pakistanis express chagrin that their nuclear program receives so much attention from the United States while the United States continues to supply enriched uranium to India, in spite of the fact that India has exploded a nuclear device and has refused to adhere to the NPT or institute full-scope safeguards.

The general consensus within the U.S. Government is that Pakistan is pursuing reprocessing and enrichment capabilities so as to be able to match India's 1974 nuclear explosion. (There are estimates that Pakistan may be able to conduct an initial nuclear test within a year or two.) Acquiring these technologies, despite U.S. opposition, is an important domestic issue. However, of greater importance is the Pakistan perception that these technologies will enhance its security position with India and improve the stability of South Asia.

South Korea

Korea has supported international efforts to enhance the peaceful uses of nuclear energy. The United States and Korea have signed agreements for cooperation in 1954, 1972, and 1974. Koreans view U.S. non-proliferation policy as serious and well-motivated but in conflict with other facets of U.S. foreign policy in Asia. Korea is concerned that it be treated on an equal basis with other nations, such as Japan. Some Koreans interpret the U.S. policy as over-zealous and believe the requirements and conditions in the NNPA are too restrictive.

Korean reactions to, and acceptance of, the U.S. strategy center on energy, security, and economic issues. Although security and economic factors are significant, the most important factor is the development of energy independence.

U.S. non-proliferation policies may have contributed to the Korean decision to seek other sources for nuclear equipment and fuel. Many Koreans believe the policy to curtail reprocessing and fast breeder reactor development jeopardizes Korean prospects for timely cooperative initiatives with the United States and other nations to expand the availability of nuclear fuel.

Spain

Spain believes that the NNPA emphasizes non-proliferation over energy requirements. The Spanish have indicated that the U.S. policy is perhaps correct for a nation that has a relatively adequate supply of alternative energy sources. However, they believe that an energy-poor nation, such as Spain, must use advanced technologies, including reprocessing and fast breeders, to achieve energy independence. As a result, Spain, after massive purchases from the United States, is currently one of the leading nuclear energy producing nations.

Uncertainty of U.S. Government nuclear policy has had an unfavorable impact on recent Spanish considerations of nuclear business with U.S. suppliers. However, factors such as its potential entry into the European Economic Community and EURATOM, national pride, and domestic policy implications may be the dominant issues affecting Spanish reactions. Furthermore, Spain wants to be treated the same as EURATOM members in nuclear cooperation matters.

United Kingdom

The British generally accept and support the basic thrust of the NNPA but differ on how its objectives should be achieved, especially for commercial reprocessing and the fast breeder reactor. There is extensive similarity of interests in the nuclear energy/nonproliferation area between the United Kingdom and the United States. The United Kingdom, for example, supports efforts to upgrade IAEA safeguards. It also agrees that the number of reprocessing and enrichment plants should be limited. However, the substantial financial and political commitment to its reprocessing facilities complicates total acceptance.

A principal factor favoring acceptance of U.S. policy is Britain's shared belief that proliferation is a serious threat to international stability. There are, however, other factors which also affect British attitudes.

--The United Kingdom's energy outlook is more favorable than some others in the Western industrialized world due to its North Sea oil.

--The United Kingdom does not import significant quantities of nuclear goods or services from the United States for its power reactors.

--The British are not currently competing with the United States or others for the nuclear reactor export business.

--Because most of the potential customers for the British reprocessing services would be required to obtain prior U.S. approval for reprocessing, the U.S. policy has obvious commercial implications for the United Kingdom.

--The British feel that the United States has not given adequate attention to the concerns of the less developed nations about the technical assistance provisions of the NPT and the issue of vertical proliferation.

The British support both the growth of nuclear power and curbing the spread of nuclear explosive technology. However, they will not sacrifice what they consider to be their national energy interests, including reprocessing, for non-proliferation.

CONCLUSIONS

U.S. foreign policy involves numerous bilateral and multilateral relationships on a wide variety of important and often interrelated issues. The U.S. non-proliferation policy affects political, military, and economic relationships with other nations. The NNPA affects such issues as national security, arms control, cooperation with allies, foreign support for U.S. economic policies, foreign trade, and the balance-of-payments.

International cooperation is the key to the non-proliferation effort. U.S. policymakers, in developing the U.S. non-proliferation strategy, anticipated some concerns. However, the extent and the tenacity of the negative foreign reaction was not anticipated. The variety of reasons that key nations have reacted negatively, indicate the difficulty in developing a strong non-proliferation strategy--acceptable to all nations.

CHAPTER 9

NON-PROLIFERATION STRATEGY ADVERSELY AFFECTS NUCLEAR EXPORT SALES BUT IMPACT OF NNPA COULD NOT BE QUANTIFIED

The NNPA establishes a policy of confirming the reliability of the United States in meeting its commitments to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies. Since legislative history indicates a concern that the NNPA might adversely affect U.S. companies competing in the international nuclear market, we assessed its impact on the competitiveness of U.S. nuclear exports. We sought to determine whether, as a result of the NNPA, any nation had, or appeared to have, ordered civilian nuclear material or equipment from a non-U.S. source, and the economic and employment impact of such action on the U.S. economy. 1/

Since passage of the NNPA, various nations have perceived the United States as seeking to impose its own standards on nations with different energy needs, unilaterally altering binding international agreements, and denying developing nations access to nuclear technology. Many nations question the reliability of the United States as a nuclear supplier and disagree with U.S. policy on plutonium reprocessing and recycling.

The impact of the NNPA, per se, on the competitiveness of U.S. nuclear exports could not be specifically determined. This is not to say that the longer-term U.S. non-proliferation strategy has had no impact on nuclear exports.

U.S. Government officials, industry representatives, and foreign buyers have indicated that U.S. non-proliferation strategy has had an effect in some foreign decisions to purchase from a non-U.S. company. But whether the NNPA, executive branch policies, financial considerations, type of reactor and equipment, or some other factor was the principal reason for such decisions is difficult to determine.

The NNPA's impact is difficult to ascertain for the following reasons.

--Foreigners generally do not differentiate between the executive branch policies and NNPA requirements in criticizing U.S. non-proliferation strategy.

--There has been a general decline in the world nuclear sales market. U.S. companies supplied 4 of the 12 nuclear power reactors sold since the passage of the NNPA.

1/See our report entitled "U.S. Nuclear Non-Proliferation Policy: Impact on Exports and Nuclear Industry Could Not Be Determined" (ID-80-42, September 23, 1980).

--U.S. firms have not received any domestic power reactor orders recently, and there have been six cancellations. This situation is not a result of non-proliferation issues but will obviously be a factor in the economic status of the nuclear industry.

--The long-term economic impact of the declining nuclear market and any "lost" sales may not be felt for several years since U.S. companies are still planning, building, and supplying plants that were ordered several years ago.

--Many foreign competitors have recently emerged--some aided by U.S. technology sales and licensing arrangements--to capture their own domestic markets and to compete aggressively for export sales.

--U.S. policies concerning human rights, political trade restrictions, environmental impact statements, the Foreign Corrupt Practices Act, and anti-boycott statutes can also affect an export sale.

If the U.S. nuclear industry cannot compete with other nuclear industries, then whatever influence the United States derives from exports will diminish and income for the industry and the U.S. economy will be affected.

IMPACT OF NNPA ON INDUSTRY EXPORT SALES

In the 3 years--1975 through 1977--preceding the NNPA, West Germany and France won export orders for 10 nuclear power reactors in four nations--Spain, South Africa, Iran, and Brazil. U.S. companies won orders for seven reactors in Spain and one reactor in the Philippines. During that period, U.S. non-proliferation policies were evolving and included certain provisions--restrictions on enrichment technology exports and control over reprocessing of U.S.-origin fuel--that became law in the NNPA. The evidence as to whether evolving U.S. non-proliferation policies hurt the ability of U.S. companies to compete for reactor export orders was mixed. Non-proliferation policies had no decisive impact on the awards to foreign vendors in the cases of Spain and South Africa. U.S. policies did, however, play a part in the failure of U.S. firms to market plants in Brazil and Iran.

Spanish electric utilities placed orders for nuclear plants with Germany in 1975 and 1977 because of superior financing terms. Nevertheless, U.S. companies argue strongly that U.S. non-proliferation policies have eroded their market position and will have an impact on future U.S. business opportunities in Spain.

South Africa awarded contracts for two nuclear units to France in 1976. General Electric had initially been designated the successful bidder but was forced to withdraw after the breakup of its consortium arrangement with a European firm. By that time, there was concern whether any U.S. nuclear vendor could obtain either Export-Import Bank financing guarantees or an export license because of the political and human rights controversies between the nations.

Iran ordered six reactors from Germany and France during 1975-1977. U.S. companies could not obtain sales commitments from Iran during this period because a U.S.-Iran nuclear agreement for cooperation had not been completed. Iran was opposed to the U.S. demand for veto rights on the transfer of spent fuel for reprocessing. The German and French reactors, however, are not likely to be completed, since the Iranian government intends to terminate its nuclear program.

Brazil reached agreement with Germany in 1975 to purchase at least two nuclear power plants and enrichment and reprocessing technology. The U.S. Government's 1974 declaration that future enrichment service contracts were contingent upon availability of U.S. enrichment capacity, and its policy severely restricting export of enrichment technology, strongly influenced Brazil to seek the agreement with Germany. Brazil's uneasiness over the reliability of the United States as an enrichment supplier, coupled with an interest in building a nuclear industry and acquiring energy independence, were decisive factors in this purchase.

Since passage of the NNPA, Romania has ordered four reactors from Canada, and Argentina has ordered one reactor from Germany. All five are to be natural uranium-fueled, heavy water reactors which are not produced by U.S. companies. However, according to the Department of Commerce, at least in the case of Argentina, this type of reactor was chosen to avoid problems in obtaining enriched fuel, thus reflecting Argentine uncertainty about U.S. policy.

During the same period, Westinghouse received orders for four nuclear reactors in South Korea. U.S. non-proliferation policies were a concern of South Korea, which insisted that contracts contain a cancellation clause if export licenses were not timely issued. That concern was eased by introduction of a congressional resolution that permitted a variance to established enrichment ceilings in certain agreements for cooperation. In June 1980, a law was passed (P.L. 96-280) which effectively eliminates those ceilings for nations, such as South Korea, which are party to the NPT.

In November 1980, South Korea contracted with the French to purchase two power reactors. This was the first time the Koreans chose a non-U.S. supplier. Westinghouse representatives and State Department officials indicated that, although the NNPA was not the deciding issue, they felt U.S. non-proliferation policies did contribute somewhat to Korea's decision to seek a diversity of supply. Apparently, the decision was basically the fulfillment of commitments made in the mid-1970s.

In late 1980, Spain agreed to purchase a power reactor from Germany as a sister unit to another German one purchased in 1975. According to State Department officials, the NNPA was not a factor in the Spanish decision.

The present status of nuclear energy programs has led some to question the viability of the nuclear industry worldwide. One study 1/ suggests that, unless substantial political and economical changes occur in the early 1980s to stimulate new orders, several major nuclear suppliers--both U.S. and foreign--will be severely strained to maintain reactor manufacturing operations. However, there are currently a few foreign power reactor export orders pending, including two for Taiwan and two for the People's Republic of China.

In the fall of 1980, Taiwan requested, for the first time, international bids for two power reactor units. According to U.S. industry representatives, requesting international bids reflects a concern about U.S. reliability as a nuclear supplier, since U.S. manufacturers have, to date, supplied all six of Taiwan's reactors.

Taiwan has established three conditions which must be met within 4 months of submitting a bid.

- --The bidder's government must make a commitment to issue the necessary export licenses or permits for the reactor and its fuel.
- --The bidder's government must give assurances of adequate fuel enrichment services from its national sources during the 40-year life of the plant.
- --The bidder's government must agree to the application of international safeguards meeting IAEA and NPT requirements.

U.S. manufacturers express concern about the ability of the United States to meet these conditions. Although U.S. firms are continuing to negotiate for the sale, the outcome--and the impact of the NNPA--is in doubt.

The People's Republic of China, a nuclear weapon nation, is embarking on its first purchase of two nuclear energy power reactors. Two years ago, France requested and received permission to sell its U.S.-licensed technology to China. According to Westinghouse officials, they have not been encouraged by the U.S. Government in their efforts to win the Chinese reactor business.

1/Lannroth, Mans and Walker, William. The Viability of the Civil Nuclear Industry. The Rockefeller Foundation/The Royal Institute of International Affairs, November 1979.

According to these officials, China would prefer to buy from Westinghouse but, because of U.S. non-proliferation controls, China's interest is waning. They also indicated that the Chinese are seeking good financing, guarantees of fuel for the operating life of their plants, and no IAEA safeguards inspection. Complicating the situation is the fact the United States does not have an agreement for cooperation with China.

Reactor orders are just part of massive purchases needed to operate a reactor. Sales by foreign reactor suppliers can also mean the loss of U.S. sales of other power plant materials and services, because foreign customers tend to buy architect-engineer services, turbine generators, components, uranium, enrichment and fabrication services, technology transfers, training, and the initial fuel load from suppliers of the same nationality as the reactor supplier.

Most of the component suppliers we contacted generally deal directly with the reactor supplier or architect-engineer rather than with the foreign customer. They were unable to identify specific sales lost as a result of U.S. non-proliferation policies but noted that they were effectively excluded from major sales for projects not won by a U.S. reactor supplier. However, those suppliers that have dealt directly with foreign customers, and were required by the NNPA to apply for export licenses, cited delays and other difficulties, due to non-proliferation concerns, in obtaining export licenses. They believe the difficulties lessen the reliability of U.S. suppliers in the eyes of foreign customers. They noted that some customers have sought other suppliers and have decided to develop a domestic nuclear industry as steps toward nuclear energy independence.

Industry officials cite the Argentine purchase of a German reactor vessel and component parts as a prime example of lost U.S. sales as the result of the NNPA. Combustion-Engineering (a U.S. firm) was apparently a leading contender for a major subcontract but problems arose because, without agreeing to full-scope safeguards, Argentina could not meet the export criteria of the NNPA. The U.S. and Argentine Governments had been discussing ways for the United States to assure that all Argentine facilities were under international safeguards. However, during this period, the U.S. firm fell from consideration and the contract was awarded to a German firm. U.S. industry officials estimate that the value of this contract would have been $60 million and 200 jobs for 3 years.

As industry officials informed us, the U.S. export market for components and other nuclear materials is tied to the reactor exports won by U.S. vendors; a decline in reactor exports will cause a decline in orders for components. In the above cited Argentina case, a German firm had previosuly been awarded the contract for the heavy water reactor. The reactor sale itself, apparently, should not be attributed to the NNPA for these reasons: (1) it is a heavy water reactor which U.S. firms do not produce, (2) the German firm had previously sold Argentina two similar reactors, and (3) Argentina, with its abundant, indigenous supply of uranium, has focused its program on the heavy water natural-uranium-fueled reactor.

The slowdown in the growth of nuclear power and the emergence of foreign enrichment capabilities have created a worldwide oversupply for enrichment services. Foreign concern over U.S. reliability and the strong desire of many nations to diversify sources of supply have been a significant part of some nations' decisions in seeking enrichment services. Energy Department officials indicated that some foreign customers gave security of supply and the adverse effect that the NNPA is perceived to have on the timely issuing of an export license as the rationale for terminating enrichment contracts with the United States. Nevertheless, we would point out that enrichment services are provided by the U.S. Government and not the private sector, although the nuclear industry receives ancilliary benefits from such sales.

OTHER FACTORS CONTRIBUTE TO REDUCED U.S. NUCLEAR EXPORTS

In addition to non-proliferation policies, other factors influence the ability of the U.S. nuclear industry to sell goods and services abroad. The United States dominated the nuclear export market through the early 1970s. However, foreign competition, some aided by U.S. technology transfers, emerged to monopolize domestic markets and compete for export business. Further, the market has been depressed since 1974, and prospects for U.S. nuclear power plant exports have dimmed greatly. Additionally, various U.S. policies, not related to non-proliferation, may also impede U.S. competition.

Decline of U.S. dominance

U.S. suppliers dominated the world market for commercial nuclear power reactors through the early 1970s. The United States also monopolized the world supply of uranium enrichment services for light water reactors until 1975.

From 1970-1973, U.S. companies supplied 86 percent of the nuclear reactor capacity exported to the free world, but this share declined to 45 percent for 1974 through 1977. From 1978, when the NNPA was enacted, through 1980, the U.S. share of this market was 39 percent. The following chart shows the U.S. share of nuclear power plant export sales and capacities to the free world on an annual basis since 1970.

	Reactor exports		Megawatts (electricity capacity)		
Year	United States	Foreign	United States	Total	U.S. percent
1970	2	0	1,529	1,529	100
1971	10	1	9,578	10,270	93
1972	7	0	6,202	6,202	100
1973	5	4	4,133	6,942	60
1974	8	8	7,505	15,424	49
1975	7	3	6,980	10,460	67
1976	1	2	970	2,814	34
1977	0	5	0	5,700	0
1978	2	2	1,800	3,000	60
1979	2	3	1,980	3,878	51
1980	0	3	0	2,897	0

During the early 1970s many nations became concerned about relying on a single source for their enrichment requirements. France, Germany, Sweden, and the United Kingdom entered into supply contracts, which remain in effect, with the Soviet Union. The United Kingdom, the Netherlands, and Germany entered into discussions which led to the formation of an enrichment consortium; and France announced a decision to construct a commercial enrichment facility with multinational ownership. Concern over relying on a single source for energy supplies was reinforced by the Arab oil embargo in 1973. In addition, as nations began to diversify enrichment sources, a number of U.S. actions caused U.S. reliability as a supplier of enrichment services to be questioned. Such actions included: (1) switching to a less attractive enrichment contract, (2) closing the order books for 4 years, (3) delaying export license approvals, (4) urging others to defer major commitments to early plutonium usage, and (5) tightening export controls.

These actions (most of them occuring prior to passage of the NNPA) raised the question of U.S. reliability and combined with the desires of other nations to be independent of a sole nuclear supplier, have changed the composition of the international enrichment market. By the mid-1980s foreign enrichment capacity could, if current plans materialize, satisfy all foreign enrichment needs currently under contract to DOE. Although DOE will not likely lose all its foreign contracts, alternative enrichment sources represent an era in which the United States, for the first time, will have to compete against foreign suppliers.

The loss of U.S. dominance--due to reduced reactor and enrichment sales overseas--diminishes U.S. ability to influence others to accept or adopt more stringent non-proliferation measures. From a non-proliferation perspective, however, the emergence of a multinational enrichment capability in Europe should not be viewed as completely undesirable. The opportunity to diversify supply sources makes it difficult for nations to justify--to the world community--developing indigenous enrichment capabilities.

The rise of foreign competitors for power reactors

Canada, Sweden, the Soviet Union, and the United Kingdom have independently developed their own nuclear technology. Other nations, notably France, Germany, Italy, and Japan, have relied, to some extent, on purchased U.S. technology to develop their nuclear industries. Technology licensing and exchange agreements benefit U.S. companies in the form of royalties and component sales, and permit U.S. suppliers to participate in markets where they might have been excluded by buy-national policies or by other factors, such as U.S. human rights policies. However, the arrangements have an obvious disadvantage; customers became competitors, excluding U.S. suppliers from their domestic markets and challenging U.S. suppliers in foreign markets.

Germany, France, Canada, Sweden, and the Soviet Union are major competitors for the world nuclear reactor export market. Each has sold reactors to nations which were potential customers for U.S. manufacturers. Other nations, especially Japan, Italy, and the United Kingdom, have potential for entering the export market.

Depressed world market

Since 1974, the worldwide nuclear industry has experienced a significant downturn of business. Today, only a few nations continue to pursue ambitious nuclear programs.

U.S. reactor vendors and their major foreign competitors have turned increasingly to export markets in search of new orders to sustain their nuclear production capacities. Even a single sale represents a substantial export transaction. The Westinghouse Corporation's 1979 sale of two reactor systems to South Korea involves exports of about $1.4 billion, which includes equipment and services of other U.S. companies. The reactor sold by Germany to Argentina in 1979 had an estimated value of $1.6 billion. Although U.S. and foreign reactor vendors, architect-engineers, and component manufacturers continue to work on the backlog of orders placed in the early 1970s, they face an uncertain future.

Other U.S. policies

Political factors are a reflection of relations between the governments of the purchaser and the competing suppliers. These factors may range from simple marketing efforts on the part of high government officials to complex multilateral issues.

We believe the following U.S. actions in recent years could impede U.S. competitiveness for nuclear exports.

--A January 1979 executive order requires an environmental impact assessment to be prepared for nuclear facility exports, further raising the possibility of delay or denial for nuclear export licenses. 1/

--Human rights policies place constraints on Government support and financing for exports to nations having records of abusing human rights.

--Restrictions have been placed on exports of strategic items to communist nations.

--The Foreign Corrupt Practices Act has raised uncertainty in international transactions because of the difficulty perceived by some of distinguishing between illegal bribes and legitimate commissions.

IMPACT ON INDUSTRY GENERALLY PERCEIVED AS NEGATIVE

In commenting on an interim report 2/, U.S. Government and industry representatives provided their views about the impact of the NNPA. Foreign officials have, over the last 3 years, also expressed their opinions about the results of the NNPA.

The State Department stated that not all potential importers of nuclear items have agreed to safeguards required by the NNPA and, therefore, some U.S. sales have had to be foregone. Moreover, the State Department noted that a number of nations are concerned about U.S. reliability of supply and perceived U.S. attempts

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1/According to the State Department, since promulgation of the executive order, three such concise environmental reviews have been completed, in accordance with the unified procedures adopted thereunder, and the Department of State considers that preparation of these documents did not in any way delay the export process.

2/See our report entitled " U.S. Nuclear Non-Proliferation Policy: Impact on Exports and Nuclear Industry Could Not Be Determined" (ID-80-42, September 23, 1980).

to unilaterally change conditions of supply. This can, State concluded, have some impact on U.S. export potential, and the United States is continuing to work to resolve such concerns.

The Department of Commerce agreed that other factors were involved, but concluded that such reasons and disincentives do not lessen the impact of the NNPA on export sales but, rather, increase the factors which must be considered by a potential buyer of U.S. nuclear exports. Commerce indicated that the more factors the potential buyer must consider, the less likely it is that one single factor will be identified as the cause of a lost export sale; however, in such a highly competitive field as nuclear exports, each additional negative factor increases the cumulative impact on the potential U.S. sale.

Commerce concluded that

--there will be a continuing adverse effect on U.S. export orders unless the principles of the NNPA are adopted by non-U.S. suppliers,

--many future orders are likely to be lost to U.S. industry because the recipient nations do not satisfy U.S. policies, and

--the policies set forth in the NNPA also affect other nuclear exports, such as components and architectural or engineering services.

U.S. industry representatives believe U.S. non-proliferation policies and the NNPA represent a competitive burden in the present export market. Moreover, a Westinghouse official commented that, as the nuclear export market begins to expand--as he feels certain it will--resentment over U.S. non-proliferation policies and perceptions of the United States as an unreliable supplier, building since the passage of the NNPA and even earlier, will be particularly important for the future U.S. competitive position. He added that another significant factor affecting future reactor sales may be U.S. health, safety, and environmental regulations related to such exports, which are not covered by the NNPA.

Japanese and Korean officials indicated that NNPA requirements concerning export licensing and retransfer approvals may adversely affect U.S. competitiveness and tarnish the U.S. image as a reliable supplier. Other potential importers have expressed similar concerns. Almost 2 years after the NNPA, European officials commented that confidence in the United States as a reliable nuclear supplier was worse than before the NNPA. Constant "ratcheting" of U.S. export conditions, delays in receiving U.S. export licenses and retransfer approvals, U.S. restrictions on spent fuel, and uncertainty about future U.S. export conditions were cited as factors reducing the competitiveness of U.S. nuclear exports in Europe and accelerating greater European supply diversification, investment in production capability, and stockpiling of fuel.

CONCLUSIONS

U.S. companies are at some disadvantage because importers perceive that implementation of certain aspects of the NNPA may adversely affect them. However, we cannot quantify the extent to which the NNPA may have dissuaded a foreign customer from purchasing nuclear products from U.S. firms.

As the number of factors that a foreign buyer must consider increases, it becomes less likely that a single factor can be identified as the cause of a lost sale. Each additional factor, as Commerce points out, increases the cumulative impact on the potential U.S. sale. But whether the NNPA, executive branch policies, financial considerations, type of reactor or equipment, or some other factor was the principal reason for foreign decisions to purchase from non-U.S. firms is difficult to determine.

CHAPTER 10

OVERALL ASSESSMENT, AGENCIES' COMMENTS, AND RELATED ISSUES

To date, the NNPA has had limited discernable impact in controlling the spread of nuclear explosive capabilities of other nations. Nevertheless, it represents a long-term agenda with ambitious international initiatives which could take a long time to conclude. We believe that selective amendments would help the NNPA achieve wider international acceptance and further U.S. non-proliferation policies. The ultimate impact of the NNPA may not be known for some time.

LIMITED SHORT-TERM RESULTS

A title-by-title review of the NNPA reveals that the law has not been fully implemented, or widely accepted abroad, and, as a result, the short-term impact of the various titles toward achieving their intended purposes has been limited.

Title I was intended to (1) provide domestic and international incentives to persuade nations not to acquire indigenous enrichment or reprocessing technologies and (2) make other requirements in the NNPA more acceptable abroad. However, the current worldwide overcapacity of enrichment services has diminished concerns over fuel supply and international initiatives have not materialized. Consequently, the acceptance and even the credibility of other U.S. non-proliferation efforts may have been adversely affected.

Title II calls for U.S. efforts to strengthen IAEA safeguards and to seek to negotiate common international sanctions and physical protection measures. However, intensified efforts to upgrade safeguards have not had as significant an impact as had been hoped. They have been outpaced by the increasing magnitude of IAEA's safeguards responsibilities and thus IAEA continues to encounter difficult problems. Furthermore, the executive branch has been unable to obtain an international consensus on sanctions but was able to successfully complete the negotiation of the international convention on physical security.

Title III provides an administrative framework for controlling U.S. nuclear exports. Although there have been improvements in some areas, numerous changes in the process are still needed to make the regulatory contols and procedures of Title III work better. More can and should be done to make Government non-proliferation reviews of export licenses more timely and predictable. A long-term policy is needed for carrying out U.S. approval rights over foreign reprocessing and plutonium use. Improvements are needed in DOE-administered controls over foreign commercial nuclear activities of U.S. firms and individuals.

Although most U.S. nuclear trading partners have complied with Title III's export licensing conditions without significant difficulties, several have not yet accepted certain controls. For example, EURATOM has not agreed to accept U.S. controls over the reprocessing of U.S.-supplied nuclear material, despite a temporary ban on the licensing of U.S. exports to it. Moreover, a few non-nuclear weapon nations with whom the United States has existing agreements for nuclear cooperation (most notably India and South Africa) have not yet complied with the U.S. requirement that they place all their nuclear activities under international safeguards.

Title IV expands the U.S. criteria for peaceful nuclear cooperation and directs the President to attempt to change existing agreements for cooperation to comply with the new criteria. However, most existing agreements have not been renegotiated to include the expanded criteria. The executive branch is also directed to seek international adherence to specified common nuclear export policies, but generally these policies have not been adopted by the world community.

Title V reaffirms the U.S. commitment to provide non-nuclear energy assistance to developing nations. However, as a practical matter, it has never been implemented. Executive branch officials were against the passage of Title V and claim its objectives are being met by existing programs. Title V has not been used by the executive branch to justify ongoing or planned programs to assist developing nations identify or develop non-nuclear energy alternatives. No funds have been specifically appropriated or allocated to implement it.

Overall, a number of important events have occured since the NNPA was enacted in 1978. On the positive side, (1) no additional nations have acknowledged exploding a nuclear device; (2) 12 nations (including Egypt, Turkey, and Indonesia) have ratified the NPT, raising to 112 the number of non-nuclear weapon nations that have pledged not to manufacture or acquire nuclear explosive devices; (3) Spain has moved toward placing all of its nuclear activities under international safeguards; and (4) the predicted foreign drive to acquire enrichment and reprocessing capabilities has abated somewhat. However, whether, and to what degree, such positive events were influenced by U.S. policy and law is difficult to assess.

On the other hand, (1) some nations appear to be seeking a nuclear explosive capability (most notably Pakistan); (2) several non-nuclear weapon nations with whom the United States has civil nuclear agreements for cooperation, including India and South Africa, have not signed the NPT or agreed to accept international safeguards on all their nuclear activities; and (3) other nations have made major export sales of sensitive nuclear technology and equipment despite U.S. objections. Whether, and to what degree, such negative events would have been different if the U.S. strategy and its implementation had been otherwise is also difficult to assess.

LONG-TERM PROSPECTS

The NNPA contains provisions for upgrading assurances that nuclear material, equipment, and technology for peaceful purposes will not be used for nuclear explosive purposes. We believe these provisions are basically sound. Even though it has not been fully implemented or widely embraced by foreign nations or the U.S. nuclear industry, we do not believe that major revisions to the NNPA are warranted at this time. Instead, we believe the NNPA should be selectively amended (see app. VIII) to better recognize political, technical, and economic realities and to obtain wider international acceptance of its primary objectives. The following supports our rationale.

The NNPA has only been in existence for 3 years and, because many cooperative international initiatives are required, it may be too soon to make a meaningful and objective assessment of its potential long-term impact.

International cooperation is the key to limiting proliferation. Unfortunately, many nations disagree on both the extent of the proliferation risk associated with peaceful nuclear energy programs and the U.S. approach to control it. This lack of consensus has hindered and will make more difficult and complex any negotiations to consummate international agreements. As time passes, the use of international cooperative approaches called for in the NNPA will be tested.

Attempts are underway to form a new post-INFCE international consensus on proliferation and the United States should avoid a sudden unilaterial shift in strategy, unless there are pressing reasons. Abrupt changes could cause concern among nations about the nature of U.S. policies and the depth of U.S. resolve to curb proliferation.

Additionally, although it is questionable whether one nation can single-handedly solve non-proliferation issues, the United States, especially through the NNPA, has heightened worldwide awareness to the dangers of proliferation. The NNPA represents an attempt to lay the foundation for an international framework of proliferation controls and cooperation. Although U.S. technological leadership may be challenged, the United States can still be an effective leader in working with other nations and through international organizations to control the spread of nuclear explosive capabilities.

Finally, the NNPA establishes a framework to control the potential links between civilian nuclear energy activities and nuclear weapons development. No such framework alone can provide an absolute guarantee of non-proliferation because there are several routes to acquiring nuclear weapons. The technology and experience gained by many nations in conducting civilian nuclear energy programs has significantly lowered the technical barriers to weapons proliferation. Therefore, the impact of any action by the United States, other nations, or groups of nations can only be measured in terms of incremental not absolute assurances. Furthermore, there remains a need to secure incremental assurances that peaceful nuclear material will not be used to develop nuclear explosive capabilities. Although the control arrangements in the NNPA have not yet had an apparent impact on the most prominent cases of proliferation risks, they may become increasingly important as more nations develop civilian nuclear energy programs and thereby increase the potential for nuclear weapons development.

RELATED DOMESTIC ISSUES

As part of its overall non-proliferation strategy, the U.S. Government adopted domestic policies on reprocessing and breeder reactor development. They were designed to set an example for others, hopefully, to emulate. However, these domestic policies have not significantly furthered U.S. non-proliferation efforts abroad and may have been counterproductive.

In April 1977, President Carter established a policy which called for an indefinite deferral of commercial reprocessing and a delay in the development of the breeder reactor, which is dependent on reprocessing for its fuel. The President justified the decision to defer domestic reprocessing on the bases that (1) nuclear power in the United States could be sustained for the foreseeable future without reprocessing, and (2) premature commercial use of reprocessing in the United States might encourage other nations to do likewise. The Carter Administration was particularly concerned that if other nations were to construct reprocessing facilities, the risks of weapons proliferation would increase. President Carter had hoped that U.S. actions would influence other nations to delay breeder reactor development until more proliferation-resistant breeder technologies could be found.

The U.S. policies of deferring reprocessing and delaying breeder development have had limited impact on the programs and plans of some nations. Nine other nations have reprocessed their own spent fuel or are developing plans to do so. The long-range plans of some of these nations include reprocessing spent fuel from other nations and, therefore, the amount of spent fuel to be reprocessed is expected to increase substantially in the next decade.

Breeder programs are also proceeding in other nations. The United Kingdom, France, and the Soviet Union are now operating industrial-size breeder reactors. Experimental breeders are being operated in Germany and Japan. Although substantial public dissent against breeder technology exists in most of these nations, their governments appear convinced that expeditious development of the breeder reactor may be necessary to meet their future energy needs.

The legislative history of the NNPA is clear that the law does not prohibit reprocessing and that the Congress did not want to prejudge the outcome of INFCE on reprocessing issues. Rather, the Congress expected that there would be a reconsideration of the reprocessing issue upon the completion of INFCE.

INFCE, completed in February 1980, indicated that reprocessing should not be deferred solely on non-proliferation grounds. Moreover, there has also been strong foreign resentment of the U.S. policy on reprocessing, as discussed throughout this report. Nevertheless, the executive branch has not yet advised the Congress of its evaluation of how INFCE's conclusions and the negative foreign reaction affect the desirability of continuing the U.S. policy on the deferral of reprocessing and the delay of breeder development.

President Carter linked U.S. domestic policies on reprocessing and breeder reactor development to non-proliferation policies in an effort to lend credence to such policies and to reinforce the U.S. commitment to non-proliferation. However, other nations have done little to follow the U.S. lead and, as a result, the U.S. position on reprocessing and breeder reactors may have even diminished the ability of the United States to influence the future worldwide development and use of these proliferation sensitive technologies. We believe, therefore, that while a degree of consistency between U.S. domestic policies and international nuclear policies is needed, the strong and direct linkage of non-proliferation objectives to domestic nuclear energy programs needs to be reassessed by the new administration and the new Congress in light of INFCE conclusions, and the lack of acceptance of the U.S. position.

In this connection, an immediate issue to be faced is whether NRC should reopen decisionmaking proceedings on the implications of commercial reprocessing and plutonium recycle in the United States. These proceedings--referred to as GESMO (Generic Environmental Statement on Mixed Oxide Fuel)--were terminated by NRC on December 23, 1977. The past administration's view that termination of the proceedings would be "helpful" to U.S. non-proliferation efforts was an important element in their termination. Thus, the present administration's view will be an important element in whether the proceedings will be reopened. NRC must complete these proceedings and find from an environmental, health, safety, and safeguards standpoint that, on a widespread basis, commercial reprocessing and use of plutonium-bearing fuels present acceptable risks before it can grant operating licenses for specific commercial facilities. 1/

Unless NRC can independently find that to reopen the GESMO proceeding would be detrimental to U.S. national security ("inimical to the common defense and security of the United States" in the words of the Atomic Energy Act of 1954), we believe NRC should resume the proceedings. In our opinion, the NRC proceedings could provide the United States a good forum for reconsidering all relevant issues.

Another related issue is whether the United States should make commitments for the construction and operation of a liquid metal fast breeder reactor plant. Other nations have concluded that the proliferation risks of this uranium/plutonium fuel cycle are not much, if at all, greater than other fuel cycles. Thus, in our judgment, the primary basis for the Carter Administration's deferral of the program can no longer be justified. We stated our position on this matter in a recent report entitled "U.S. Fast Breeder Reactor Program Needs Direction" (EMD-80-81, September 22, 1980).

RECOMMENDATION TO THE NUCLEAR REGULATORY COMMISSION

Unless the Commission determines that it would be detrimental to U.S. national security interests, NRC should resume decisionmaking proceedings on whether commercial reprocessing and the use of plutonium-bearing fuels should be permitted on a widescale basis in the United States from an environmental, health, safety, and safeguards standpoint.

AGENCY AND OTHER COMMENTS

We sent copies of our draft report to six agencies--the Departments of State and Energy, the Nuclear Regulatory Commission, the Arms Control and Disarmament Agency, the Agency for International Development, and the Office of Management and Budget--for their review and comment. The responses are provided in appendix X.

The Department of State generally agreed with our conclusions that (1) the overall impact of the NNPA may not be known for some time, but parts of it and related U.S. policies have had adverse impacts, and (2) there has been a significant

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1/A Federal Court of Appeals ruling has prevented NRC from granting licenses for plutonium recycle-related activities on a commerical scale until it completes the GESMO proceedings. Natural Resources Defense Council, Inc. v. Nuclear Regulatory Commission, 539 F. 2d 824 (2d. Cir. 1976).

lack of consensus, internationally, and in many cases domestically, on key non-proliferation issues. However, the State Department said it would not provide substantive comment or response to our conclusions and recommendations because the Department will be reviewing a number of non-proliferation matters, including issues addressed in this report.

The Department of Energy declined the opportunity to provide written comments. Officials indicated that the new administration could be expected to address the non-proliferation issue but would want to avoid rushing into judgments. According to DOE, the new administration will require time to form judgments as to whether or to what extent the NNPA should be amended or rescinded.

ACDA commented that it was in the process of studying many of the issues addressed in the draft report and was not in a position to provide substantive comments at this time.

NRC did not express an opinion about its role in the export licensing process but commented that it shared our conclusion that export procedures should be streamlined wherever possible, consistent with the NNPA. The staff indicated that in the near future, NRC would be seeking the views of the President on whether to proceed with its study of the domestic reprocessing issue. The NRC staff agreed with our conclusion that the Congress should consider clarifying to what extent effectiveness of international safeguards should be considered in export licensing. They also indicated that they would be submitting a paper to the Commission on this matter which recommends that congressional guidance be sought.

AID indicated it agreed that Title V of the NNPA, dealing with non-nuclear alternatives, could be deleted.

OMB declined to provide any official written comment. However, an OMB official said OMB would expeditiously complete its required report on the feasibility of a scientific peace corps after the new administration completes its review of the NNPA.

We also received comments from 14 consultants. Their comments and our responses are summarized in appendix IX.

NUCLEAR NON-PROLIFERATION ACT OF 1978

Public Law 95-242
95th Congress

An Act

Mar. 10, 1978
[H.R. 8638]

To provide for more efficient and effective control over the proliferation of nuclear explosive capability.

Nuclear Non-Proliferation Act of 1978.
22 USC 3201 note.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Nuclear Non-Proliferation Act of 1978".

STATEMENT OF POLICY

22 USC 3201.

SEC. 2. The Congress finds and declares that the proliferation of nuclear explosive devices or of the direct capability to manufacture or otherwise acquire such devices poses a grave threat to the security interests of the United States and to continued international progress toward world peace and development. Recent events emphasize the urgency of this threat and the imperative need to increase the effectiveness of international safeguards and controls on peaceful nuclear activities to prevent proliferation. Accordingly, it is the policy of the United States to—

(a) actively pursue through international initiatives mechanisms for fuel supply assurances and the establishment of more effective international controls over the transfer and use of nuclear materials and equipment and nuclear technology for peaceful purposes in order to prevent proliferation, including the establishment of common international sanctions;

(b) take such actions as are required to confirm the reliability of the United States in meeting its commitments to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies by establishing procedures to facilitate the timely processing of requests for subsequent arrangements and export licenses;

(c) strongly encourage nations which have not ratified the Treaty on the Non-Proliferation of Nuclear Weapons to do so at the earliest possible date; and

(d) cooperate with foreign nations in identifying and adapting suitable technologies for energy production and, in particular, to identify alternative options to nuclear power in aiding such nations to meet their energy needs, consistent with the economic and material resources of those nations and environmental protection.

STATEMENT OF PURPOSE

22 USC 3202.

SEC. 3. It is the purpose of this Act to promote the policies set forth above by—

(a) establishing a more effective framework for international cooperation to meet the energy needs of all nations and to ensure that the worldwide development of peaceful nuclear activities and the export by any nation of nuclear materials and equipment and nuclear technology intended for use in peaceful nuclear activities do not contribute to proliferation;

(b) authorizing the United States to take such actions as are required to ensure that it will act reliably in meeting its commitment to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies;

(c) providing incentives to the other nations of the world to join in such international cooperative efforts and to ratify the Treaty; and

(d) ensuring effective controls by the United States over its exports of nuclear materials and equipment and of nuclear technology.

DEFINITIONS

SEC. 4. (a) As used in this Act, the term— 22 USC 3203.

(1) "Commission" means the Nuclear Regulatory Commission;

(2) "Director" means the Director of the Arms Control and Disarmament Agency;

(3) "IAEA" means International Atomic Energy Agency;

(4) "nuclear materials and equipment" means source material, special nuclear material, production facilities, utilization facilities, and components, items or substances determined to have significance for nuclear explosive purposes pursuant to subsection 109 b. of the 1954 Act; *Post*, p. 141.

(5) "physical security measures" means measures to reasonably ensure that source or special nuclear material will only be used for authorized purposes and to prevent theft and sabotage;

(6) "sensitive nuclear technology" means any information (including information incorporated in a production or utilization facility or important component part thereof) which is not available to the public and which is important to the design, construction, fabrication, operation or maintenance of a uranium enrichment or nuclear fuel reprocessing facility or a facility for the production of heavy water, but shall not include Restricted Data controlled pursuant to chapter 12 of the 1954 Act;

(7) "1954 Act" means the Atomic Energy Act of 1954, as amended; and 42 USC 2011 note.

(8) "the Treaty" means the Treaty on the Non-Proliferation of Nuclear Weapons.

(b) All other terms used in this Act not defined in this section shall have the meanings ascribed to them by the 1954 Act, the Energy Reorganization Act of 1974, and the Treaty. 42 USC 5801 note.

TITLE I—UNITED STATES INITIATIVES TO PROVIDE ADEQUATE NUCLEAR FUEL SUPPLY

POLICY

SEC. 101. The United States, as a matter of national policy, shall take such actions and institute such measures as may be necessary and feasible to assure other nations and groups of nations that may seek to utilize the benefits of atomic energy for peaceful purposes that it will provide a reliable supply of nuclear fuel to those nations and groups of nations which adhere to policies designed to prevent proliferation. Such nuclear fuel shall be provided under agreements entered into pursuant to section 161 of the 1954 Act or as otherwise authorized by law. The United States shall ensure that it will have available the capacity on a long-term basis to enter into new fuel supply commitments consistent with its non-proliferation policies and domestic energy needs. The Commission shall, on a timely basis,

22 USC 3221.

42 USC 2201.

authorize the export of nuclear materials and equipment when all the applicable statutory requirements are met.

URANIUM ENRICHMENT CAPACITY

22 USC 3222.

SEC. 102. The Secretary of Energy is directed to initiate construction planning and design, construction, and operation activities for expansion of uranium enrichment capacity, as elsewhere provided by law. Further the Secretary as well as the Nuclear Regulatory Commission, the Secretary of State, and the Director of the Arms Control and Disarmament Agency are directed to establish and implement procedures which will ensure to the maximum extent feasible, consistent with this Act, orderly processing of subsequent arrangements and export licenses with minimum time delay.

REPORT

Study.
22 USC 3222 note.
Report to Congress.

SEC. 103. The President shall promptly undertake a study to determine the need for additional United States enrichment capacity to meet domestic and foreign needs and to promote United States nonproliferation objectives abroad. The President shall report to the Congress on the results of this study within twelve months after the date of enactment of this Act.

INTERNATIONAL UNDERTAKINGS

Discussions and negotiations.
22 USC 3223.

SEC. 104. (a) Consistent with section 105 of this Act, the President shall institute prompt discussions with other nations and groups of nations, including both supplier and recipient nations, to develop international approaches for meeting future worldwide nuclear fuel needs. In particular, the President is authorized and urged to seek to negotiate as soon as practicable with nations possessing nuclear fuel production facilities or source material, and such other nations and groups of nations, such as the IAEA, as may be deemed appropriate, with a view toward the timely establishment of binding international undertakings providing for—

(1) the establishment of an international nuclear fuel authority (INFA) with responsibility for providing agreed upon fuel services and allocating agreed upon quantities of fuel resources to ensure fuel supply on reasonable terms in accordance with agreements between INFA and supplier and recipient nations;

(2) a set of conditions consistent with subsection (d) under which international fuel assurances under INFA auspices will be provided to recipient nations, including conditions which will ensure that the transferred materials will not be used for nuclear explosive devices;

(3) devising, consistent with the policy goals set forth in section 403 of this Act, feasible and environmentally sound approaches for the siting, development, and management under effective international auspices and inspection of facilities for the provision of nuclear fuel services, including the storage of special nuclear material;

(4) the establishment of repositories for the storage of spent nuclear reactor fuel under effective international auspices and inspection;

(5) the establishment of arrangements under which nations placing spent fuel in such repositories would receive appropriate

compensation for the energy content of such spent fuel if recovery of such energy content is deemed necessary or desirable; and

(6) sanctions for violation of the provisions of or for abrogation of such binding international undertakings.

Proposals, submittal to Congress.

(b) The President shall submit to Congress not later than six months after the date of enactment of this Act proposals for initial fuel assurances, including creation of an interim stockpile of uranium enriched to less than 20 percent in the uranium isotope 235 (low-enriched uranium) to be available for transfer pursuant to a sales arrangement to nations which adhere to strict policies designed to prevent proliferation when and if necessary to ensure continuity of nuclear fuel supply to such nations. Such submission shall include proposals for the transfer of low-enriched uranium up to an amount sufficient to produce 100,000 MWe years of power from light water nuclear reactors, and shall also include proposals for seeking contributions from other supplier nations to such an interim stockpile pending the establishment of INFA.

(c) The President shall, in the report required by section 103, also address the desirability of and options for foreign participation, including investment, in new United States uranium enrichment facilities. This report shall also address the arrangements that would be required to implement such participation and the commitments that would be required as a condition of such participation. This report shall be accompanied by any proposed legislation to implement these arrangements.

Proposed legislation.

(d) The fuel assurances contemplated by this section shall be for the benefit of nations that adhere to policies designed to prevent proliferation. In negotiating the binding international undertakings called for in this section, the President shall, in particular, seek to ensure that the benefits of such undertakings are available to non-nuclear-weapon states only if such states accept IAEA safeguards on all their peaceful nuclear activities, do not manufacture or otherwise acquire any nuclear explosive device, do not establish any new enrichment or reprocessing facilities under their de facto or de jure control, and place any such existing facilities under effective international auspices and inspection.

(e) The report required by section 601 shall include information on the progress made in any negotiations pursuant to this section.

(f)(1) The President may not enter into any binding international undertaking negotiated pursuant to subsection (a) which is not a treaty until such time as such proposed undertaking has been submitted to the Congress and has been approved by concurrent resolution.

(2) The proposals prepared pursuant to subsection (b) shall be submitted to the Congress as part of an annual authorization Act for the Department of Energy.

REEVALUATION OF NUCLEAR FUEL CYCLE

22 USC 3224.

SEC. 105. The President shall take immediate initiatives to invite all nuclear supplier and recipient nations to reevaluate all aspects of the nuclear fuel cycle, with emphasis on alternatives to an economy based on the separation of pure plutonium or the presence of high enriched uranium, methods to deal with spent fuel storage, and methods to improve the safeguards for existing nuclear technology. The President shall, in the first report required by section 601, detail the progress of such international reevaluation.

TITLE II—UNITED STATES INITIATIVES TO STRENGTHEN THE INTERNATIONAL SAFEGUARDS SYSTEM

POLICY

22 USC 3241. SEC. 201. The United States is committed to continued strong support for the principles of the Treaty on the Non-Proliferation of Nuclear Weapons, to a strengthened and more effective International Atomic Energy Agency and to a comprehensive safeguards system administered by the Agency to deter proliferation. Accordingly, the United States shall seek to act with other nations to—

(a) continue to strengthen the safeguards program of the IAEA and, in order to implement this section, contribute funds, technical resources, and other support to assist the IAEA in effectively implementing safeguards;

(b) ensure that the IAEA has the resources to carry out the provisions of Article XII of the Statute of the IAEA;

(c) improve the IAEA safeguards system (including accountability) to ensure—

(1) the timely detection of a possible diversion of source or special nuclear materials which could be used for nuclear explosive devices;

(2) the timely dissemination of information regarding such diversion; and

(3) the timely implementation of internationally agreed procedures in the event of such diversion;

(d) ensure that the IAEA receives on a timely basis the data needed for it to administer an effective and comprehensive international safeguards program and that the IAEA provides timely notice to the world community of any evidence of a violation of any safeguards agreement to which it is a party; and

(e) encourage the IAEA, to the maximum degree consistent with the Statute, to provide nations which supply nuclear materials and equipment with the data needed to assure such nations of adherence to bilateral commitments applicable to such supply.

TRAINING PROGRAM

22 USC 3242. SEC. 202. The Department of Energy, in consultation with the Commission, shall establish and operate a safeguards and physical security training program to be made available to persons from nations and groups of nations which have developed or acquired, or may be expected to develop or acquire, nuclear materials and equipment for use for peaceful purposes. Any such program shall include training in the most advanced safeguards and physical security techniques and technology, consistent with the national security interests of the United States.

NEGOTIATIONS

22 USC 3243. SEC. 203. The United States shall seek to negotiate with other nations and groups of nations to—

(1) adopt general principles and procedures, including common international sanctions, to be followed in the event that a nation violates any material obligation with respect to the peaceful use of nuclear materials and equipment or nuclear technology, or in

the event that any nation violates the principles of the Treaty, including the detonation by a non-nuclear-weapon state of a nuclear explosive device; and

(2) establish international procedures to be followed in the event of diversion, theft, or sabotage of nuclear materials or sabotage of nuclear facilities, and for recovering nuclear materials that have been lost or stolen, or obtained or used by a nation or by any person or group in contravention of the principles of the Treaty.

TITLE III—EXPORT ORGANIZATION AND CRITERIA

GOVERNMENT-TO-GOVERNMENT TRANSFERS

Post, p. 131. 42 USC 2074.

SEC. 301. (a) Section 54 of the 1954 Act is amended by adding a new subsection d. thereof as follows:

"d. The authority to distribute special nuclear material under this section other than under an export license granted by the Nuclear Regulatory Commission shall extend only to the following small quantities of special nuclear material (in no event more than five hundred grams per year of the uranium isotope 233, the uranium isotope 235, or plutonium contained in special nuclear material to any recipient):

"(1) which are contained in laboratory samples, medical devices, or monitoring or other instruments; or

"(2) the distribution of which is needed to deal with an emergency situation in which time is of the essence.".

42 USC 2094.

(b) Section 64 of the 1954 Act is amended by inserting the following immediately after the second sentence thereof: "The authority to distribute source material under this section other than under an export license granted by the Nuclear Regulatory Commission shall in no case extend to quantities of source material in excess of three metric tons per year per recipient.".

(c) Chapter 10 of the 1954 Act is amended by adding a new section 111 as follows:

42 USC 2141. *Supra.* 42 USC 2112.

"SEC. 111. a. The Nuclear Regulatory Commission is authorized to license the distribution of special nuclear material, source material, and byproduct material by the Department of Energy pursuant to section 54, 64, and 82 of this Act, respectively, in accordance with the same procedures established by law for the export licensing of such material by any person: *Provided*, That nothing in this section shall require the licensing of the distribution of byproduct material by the Department of Energy under section 82 of this Act.

Post, p. 136.

"b. The Department of Energy shall not distribute any special nuclear material or source material under section 54 or 64 of this Act other than under an export license issued by the Nuclear Regulatory Commission until (1) the Department has obtained the concurrence of the Department of State and has consulted with the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission, and the Department of Defense under mutually agreed procedures which shall be established within not more than ninety days after the date of enactment of this provision and (2) the Department finds based on a reasonable judgment of the assurances provided and the information available to the United States Government, that the criteria in section 127 of this Act or their equivalent and any appli-

Post, p. 137.

cable criteria in subsection 128 are met, and that the proposed distribution would not be inimical to the common defense and security.".

Special nuclear material, production.
Technology transfers.
42 USC 2077.
Post, p. 142.
Post, p. 127.

SEC. 302. Subsection 57 b. of the 1954 Act is amended to read as follows:

"b. It shall be unlawful for any person to directly or indirectly engage in the production of any special nuclear material outside of the United States except (1) as specifically authorized under an agreement for cooperation made pursuant to section 123, including a specific authorization in a subsequent arrangement under section 131 of this Act, or (2) upon authorization by the Secretary of Energy after a determination that such activity will not be inimical to the interest of the United States: *Provided*, That any such determination by the Secretary of Energy shall be made only with the concurrence of the Department of State and after consultation with the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission, the Department of Commerce, and the Department of Defense. The Secretary of Energy shall, within ninety days after the enactment of the Nuclear Non-Proliferation Act of 1978, establish orderly and expeditious procedures, including provision for necessary administrative actions and inter-agency memoranda of understanding, which are mutually agreeable to the Secretaries of State, Defense, and Commerce, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission for the consideration of requests for authorization under this subsection. Such procedures shall include, at a minimum, explicit direction on the handling of such requests, express deadlines for the solicitation and collection of the views of the consulted agencies (with identified officials responsible for meeting such deadlines), an interagency coordinating authority to monitor the processing of such requests, predetermined procedures for the expeditious handling of intra-agency and inter-agency disagreements and appeals to higher authorities, frequent meetings of inter-agency administrative coordinators to review the status of all pending requests, and similar administrative mechanisms. To the extent practicable, an applicant should be advised of all the information required of the applicant for the entire process for every agency's needs at the beginning of the process. Potentially controversial requests should be identified as quickly as possible so that any required policy decisions or diplomatic consultations can be initiated in a timely manner. An immediate effort should be undertaken to establish quickly any necessary standards and criteria, including the nature of any required assurances or evidentiary showings, for the decision required under this subsection. The processing of any request proposed and filed as of the date of enactment of the Nuclear Non-Proliferation Act of 1978 shall not be delayed pending the development and establishment of procedures to implement the requirements of this subsection. Any trade secrets or proprietary information submitted by any person seeking an authorization under this subsection shall be afforded the maximum degree of protection allowable by law: *Provided further*, That the export of component parts as defined in subsection 11 v. (2) or 11 cc. (2) shall be governed by sections 109 and 126 of this Act: *Provided further*, That notwithstanding subsection 402(d) of the Department of Energy Organization Act (Public Law 95-91), the Secretary of Energy and not the Federal Energy Regulatory Commission, shall have sole jurisdiction within the Department of Energy over any matter arising from any function of the Secretary of Energy in this section, section 54 d., section 64, or section 111 b.".

Authorization requests, procedures.

Standards and criteria.

Trade secrets, protection.

42 USC 2014.
Post, pp. 131, 141.

42 USC 7172.

Ante, p. 125.
42 USC 2074, 2094.

SUBSEQUENT ARRANGEMENTS

SEC. 303. (a) Chapter 11 of the 1954 Act, as amended by sections 304, 305, 306, 307, and 308, is further amended by adding at the end thereof the following:

42 USC 2160.
Consultation.

"SEC. 131. SUBSEQUENT ARRANGEMENTS.—

"a. (1) Prior to entering into any proposed subsequent arrangement under an agreement for cooperation (other than an agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c. of this Act), the Secretary of Energy shall obtain the concurrence of the Secretary of State and shall consult with the Director, the Commission, and the Secretary of Defense: *Provided*, That the Secretary of State shall have the leading role in any negotiations of a policy nature pertaining to any proposed subsequent arrangement regarding arrangements for the storage or disposition of irradiated fuel elements or approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of source or special nuclear material, production or utilization facilities, or nuclear technology. Notice of any proposed subsequent arrangement shall be published in the Federal Register, together with the written determination of the Secretary of Energy that such arrangement will not be inimical to the common defense and security, and such proposed subsequent arrangement shall not take effect before fifteen days after publication. Whenever the Director declares that he intends to prepare a Nuclear Proliferation Assessment Statement pursuant to paragraph (2) of this subsection, notice of the proposed subsequent arrangement which is the subject of the Director's declaration shall not be published until after the receipt by the Secretary of Energy of such Statement or the expiration of the time authorized by subsection c. for the preparation of such Statement, whichever occurs first.

42 USC 2121, 2164.

Notice, publication in the Federal Register.

Nuclear Proliferation Assessment Statement.

"(2) If in the Director's view a proposed subsequent arrangement might significantly contribute to proliferation, he may prepare an unclassified Nuclear Proliferation Assessment Statement with regard to such proposed subsequent arrangement regarding the adequacy of the safeguards and other control mechanisms and the application of the peaceful use assurances of the relevant agreement to ensure that assistance to be furnished pursuant to the subsequent arrangement will not be used to further any military or nuclear explosive purpose. For the purposes of this section, the term 'subsequent arrangements' means arrangements entered into by any agency or department of the United States Government with respect to cooperation with any nation or group of nations (but not purely private or domestic arrangements) involving—

"Subsequent arrangements."

Contracts.

"(A) contracts for the furnishing of nuclear materials and equipment;

"(B) approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of any source or special nuclear material, production or utilization facility, or nuclear technology;

"(C) authorization for the distribution of nuclear materials and equipment pursuant to this Act which is not subject to the procedures set forth in section 111 b., section 126, or section 109 b.;

Ante, p. 125.
Post, pp. 131, 141.

"(D) arrangements for physical security;

"(E) arrangements for the storage or disposition of irradiated fuel elements;

"(F) arrangements for the application of safeguards with respect to nuclear materials and equipment; or

"(G) any other arrangement which the President finds to be important from the standpoint of preventing proliferation.

"(3) The United States will give timely consideration to all requests for prior approval, when required by this Act, for the reprocessing of material proposed to be exported, previously exported and subject to the applicable agreement for cooperation, or special nuclear material produced through the use of such material or a production or utilization facility transferred pursuant to such agreement for cooperation, or to the altering of irradiated fuel elements containing such material, and additionally, to the maximum extent feasible, will attempt to expedite such consideration when the terms and conditions for such actions are set forth in such agreement for cooperation or in some other international agreement executed by the United States and subject to congressional review procedures comparable to those set forth in section 123 of this Act.

Post, p. 142.

"(4) All other statutory requirements under other sections of this Act for the approval or conduct of any arrangement subject to this subsection shall continue to apply and any other such requirements for prior approval or conditions for entering such arrangements shall also be satisfied before the arrangement takes effect pursuant to subsection a. (1).

"b. With regard to any special nuclear material exported by the United States or produced through the use of any nuclear materials and equipment or sensitive nuclear technology exported by the United States—

Report to congressional committees.

"(1) the Secretary of Energy may not enter into any subsequent arrangement for the retransfer of any such material to a third country for reprocessing, for the reprocessing of any such material, or for the subsequent retransfer of any plutonium in quantities greater than 500 grams resulting from the reprocessing of any such material, until he has provided the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate with a report containing his reasons for entering into such arrangement and a period of 15 days of continuous session (as defined in subsection 130 g. of this Act) has elapsed: *Provided, however*, That if in the view of the President an emergency exists due to unforeseen circumstances requiring immediate entry into a subsequent arrangement, such period shall consist of fifteen calendar days;

Post, p. 139.

"(2) the Secretary of Energy may not enter into any subsequent arrangement for the reprocessing of any such material in a facility which has not processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978 or for subsequent retransfer to a non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, unless in his judgment, and that of the Secretary of State, such reprocessing or retransfer will not result in a significant increase of the risk of proliferation beyond that which exists at the time that approval is requested. Among all the factors in making this judgment, foremost consideration will be given to whether or not the reprocessing or retransfer will take place under conditions that will ensure timely warning to the United States of any diversion well in advance of the time at which the non-nuclear-weapon state could transform the diverted material into a nuclear explosive device; and

"(3) the Secretary of Energy shall attempt to ensure, in entering into any subsequent arrangement for the reprocessing of any such material in any facility that has processed power reactor fuel assemblies or been the subject of a subsequent arrangement therefor prior to the date of enactment of the Nuclear Non-Proliferation Act of 1978, or for the subsequent retransfer to any non-nuclear-weapon state of any plutonium in quantities greater than 500 grams resulting from such reprocessing, that such reprocessing or retransfer shall take place under conditions comparable to those which in his view, and that of the Secretary of State, satisfy the standards set forth in paragraph (2).

Nuclear materials, reprocessing or transfer procedures.

"c. The Secretary of Energy shall, within ninety days after the enactment of this section, establish orderly and expeditious procedures, including provision for necessary administrative actions and inter-agency memoranda of understanding, which are mutually agreeable to the Secretaries of State, Defense, and Commerce, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission for the consideration of requests for subsequent arrangements under this section. Such procedures shall include, at a minimum, explicit direction on the handling of such requests, express deadlines for the solicitation and collection of the views of the consulted agencies (with identified officials responsible for meeting such deadlines), an inter-agency coordinating authority to monitor the processing of such requests, predetermined procedures for the expeditious handling of intra-agency and inter-agency disagreements and appeals to higher authorities, frequent meetings of inter-agency administrative coordinators to review the status of all pending requests, and similar administrative mechanisms. To the extent practicable, an applicant should be advised of all the information required of the applicant for the entire process for every agency's needs at the beginning of the process. Potentially controversial requests should be identified as quickly as possible so that any required policy decisions or diplomatic consultations can be initiated in a timely manner. An immediate effort should be undertaken to establish quickly any necessary standards and criteria, including the nature of any required assurance or evidentiary showings, for the decisions required under this section. Further, such procedures shall specify that if he intends to prepare a Nuclear Proliferation Assessment Statement, the Director shall so declare in his response to the Department of Energy. If the Director declares that he intends to prepare such a Statement, he shall do so within sixty days of his receipt of a copy of the proposed subsequent arrangement (during which time the Secretary of Energy may not enter into the subsequent arrangement), unless pursuant to the Director's request, the President waives the sixty-day requirement and notifies the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate of such waiver and the justification therefor. The processing of any subsequent arrangement proposed and filed as of the date of enactment of this section shall not be delayed pending the development and establishment of procedures to implement the requirements of this section.

Controversial requests, identification.
Standards and criteria.

Nuclear Proliferation Assessment Statement.
Presidential waiver.
Notice to congressional committees.

"d. Nothing in this section is intended to prohibit, permanently or unconditionally, the reprocessing of spent fuel owned by a foreign nation which fuel has been supplied by the United States, to preclude the United States from full participation in the International Nuclear Fuel Cycle Evaluation provided for in section 105 of the Nuclear Non-Proliferation Act of 1978; to in any way limit the presentation or consideration in that evaluation of any nuclear fuel cycle by the United States or any other participation; nor to prejudice open and objective consideration of the results of the evaluation.

42 USC 7172.

"e. Notwithstanding subsection 402(d) of the Department of Energy Organization Act (Public Law 95-91), the Secretary of Energy, and not the Federal Energy Regulatory Commission, shall have sole jurisdiction within the Department of Energy over any matter arising from any function of the Secretary of Energy in this section.

Presidential plan, submittal to Congress.

"f. (1) With regard to any subsequent arrangement under subsection a. (2)(E) (for the storage or disposition of irradiated fuel elements), where such arrangement involves a direct or indirect commitment of the United States for the storage or other disposition, interim or permanent, of any foreign spent nuclear fuel in the United States, the Secretary of Energy may not enter into any such subsequent arrangement, unless:

Post, p. 139.

"(A)(i) Such commitment of the United States has been submitted to the Congress for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act) and has been referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, but any such commitment shall not become effective if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that it does not favor the commitment, any such commitment to be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions; or (ii) if the President has submitted a detailed generic plan for such disposition or storage in the United States to the Congress for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act), which plan has been referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate and has not been disapproved during such sixty-day period by the adoption of a concurrent resolution stating in substance that Congress does not favor the plan; and the commitment is subject to the terms of an effective plan. Any such plan shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions;

"(B) The Secretary of Energy has complied with subsection a.; and

Ante, p. 125.
Post, p. 131.

"(C) The Secretary of Energy has complied, or in the arrangement will comply with all other statutory requirements of this Act, under sections 54 and 55 and any other applicable sections, and any other requirements of law.

Notice to congressional committees.

"(2) Subsection (1) shall not apply to the storage or other disposition in the United States of limited quantities of foreign spent nuclear fuel if the President determines that (A) a commitment under section 54 or 55 of this Act of the United States for storage or other disposition of such limited quantities in the United States is required by an emergency situation, (B) it is in the national interest to take such immediate action, and (C) he notifies the Committees on International Relations and Science and Technology of the House of Representatives and the Committees on Foreign Relations and Energy and Natural

Resources of the Senate of the determination and action, with a detailed explanation and justification thereof, as soon as possible.

Plan, contents.

"(3) Any plan submitted by the President under subsection f. (1) shall include a detailed discussion, with detailed information, and any supporting documentation thereof, relating to policy objectives, technical description, geographic information, cost data and justifications, legal and regulatory considerations, environmental impact information and any related international agreements, arrangements or understandings.

"Foreign spent nuclear fuel."

"(4) For the purposes of this subsection, the term 'foreign spent nuclear fuel' shall include any nuclear fuel irradiated in any nuclear power reactor located outside of the United States and operated by any foreign legal entity, government or nongovernment, regardless of the legal ownership or other control of the fuel or the reactor and regardless of the origin or licensing of the fuel or reactor, but not including fuel irradiated in a research reactor.".

Ante, p. 125.

(b)(1) Section 54 of the 1954 Act is amended by adding new subsection e. as follows.

"e. The authority in this section to commit United States funds for any activities pursuant to any subsequent arrangement under section 131 a. (2)(E) shall be subject to the requirements of section 131.".

Ante, p. 127.
42 USC 2075.

(2) Section 55 of the 1954 Act is amended by adding a proviso at the end of the section as follows. "*Providing*, That the authority in this section to commit United States funds for any activities pursuant to any subsequent arrangement under section 131 a. (2)(E) shall be subject to the requirements of section 131.".

EXPORT LICENSING PROCEDURES

SEC. 304. (a) Chapter 11 of the 1954 Act is amended by adding a new section 126 as follows:

42 USC 2155.
Exemption.

"SEC. 126. EXPORT LICENSING PROCEDURES.—

"a. No license may be issued by the Nuclear Regulatory Commission (the 'Commission') for the export of any production or utilization facility, or any source material or special nuclear material, including distributions of any material by the Department of Energy under section 54, 64, or 82, for which a license is required or requested, and no exemption from any requirement for such an export license may be granted by the Commission, as the case may be, until—

Ante, p. 125.
Supra.
42 USC 2112.
Executive branch judgement, notice to Commission.

"(1) the Commission has been notified by the Secretary of State that it is the judgment of the executive branch that the proposed export or exemption will not be inimical to the common defense and security, or that any export in the category to which the proposed export belongs would not be inimical to the common defense and security because it lacks significance for nuclear explosive purposes. The Secretary of State shall, within ninety days after the enactment of this section, establish orderly and expeditious procedures, including provision for necessary administrative actions and inter-agency memoranda of understanding, which are mutually agreeable to the Secretaries of Energy, Defense, and Commerce, the Director of the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission for the preparation of the executive branch judgment on export applications under this section. Such procedures shall include, at a minimum, explicit direction on the handling of such applications, express deadlines for the solicitation and collection of the views of the consulted agencies (with identified officials responsible for meet-

Procedures.

Contents.

ing such deadlines), an inter-agency coordinating authority to monitor the processing of such applications, predetermined procedures for the expeditious handling of intra-agency and inter-agency disagreements and appeals to higher authorities, frequent meetings of inter-agency administrative coordinators to review the status of all pending applications, and similar administrative mechanisms. To the extent practicable, an applicant should be advised of all the information required of the applicant for the entire process for every agency's needs at the beginning of the process. Potentially controversial applications should be identified as quickly as possible so that any required policy decisions or diplomatic consultations con be initiated in a timely manner. An immediate effort should be undertaken to establish quickly any necessary standards and criteria, including the nature of any required assurances or evidentiary showings, for the decisions required under this section. The processing of any export application proposed and filed as of the date of enactment of this section shall not be delayed pending the development and establishment of procedures to implement the requirements of this section. The executive branch judgment shall be completed in not more than sixty days from receipt of the application or request, unless the Secretary of State in his discretion specifically authorizes additional time for consideration of the application or request because it is in the national interest to allow such additional time. The Secretary shall notify the Committee on Foreign Relations of the Senate and the Committee on International Relations of the House of Representatives of any such authorization. In submitting any such judgment, the Secretary of State shall specifically address the extent to which the export criteria then in effect are met and the extent to which the cooperating party has adhered to the provisions of the applicable agreement for cooperation. In the event he considers it warranted, the Secretary may also address the following additional factors, among others:

Standards and criteria.

Notice to congressional committees.

"(A) whether issuing the license or granting the exemption will materially advance the non-proliferation policy of the United States by encouraging the recipient nation to adhere to the Treaty, or to participate in the undertakings contemplated by section 403 or 404(a) of the Nuclear Non-Proliferation Act of 1978;

"(B) whether failure to issue the license or grant the exemption would otherwise be seriously prejudicial to the non-proliferation objectives of the United States; and

"(C) whether the recipient nation or group of nations has agreed that conditions substantially identical to the export criteria set forth in section 127 of this Act will be applied by another nuclear supplier nation or group of nations to the proposed United States export, and whether in the Secretary's judgment those conditions will be implemented in a manner acceptable to the United States.

Post, p. 136.

Data and recommendations.

The Secretary of State shall provide appropriate data and recommendations, subject to requests for additional data and recommendations, as required by the Commission or the Secretary of Energy, as the case may be; and

"(2) the Commission finds, based on a reasonable judgment of the assurances provided and other information available to the Federal Government, including the Commission, that the criteria in section 127 of this Act or their equivalent, and any other applicable statutory requirements, are met: *Provided*, That continued cooperation under an agreement for cooperation as authorized in accordance with section 124 of this Act shall not be prevented by failure to meet the provisions of paragraph (4) or (5) of section 127 for a period of thirty days after enactment of this section, and for a period of twenty-three months thereafter if the Secretary of State notifies the Commission that the nation or group of nations bound by the relevant agreement has agreed to negotiations as called for in section 404(a) of the Nuclear Non-Proliferation Act of 1978; however, nothing in this subsection shall be deemed to relinquish any rights which the United States may have under agreements for cooperation in force on the date of enactment of this section: *Provided further*, That if, upon the expiration of such twenty-four month period, the President determines that failure to continue cooperation with any group of nations which has been exempted pursuant to the above proviso from the provisions of paragraph (4) or (5) of section 127 of this Act, but which has not yet agreed to comply with those provisions would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security, he may, after notifying the Congress of his determination, extend by Executive order the duration of the above proviso for a period of twelve months, and may further extend the duration of such proviso by one year increments annually thereafter if he again makes such determination and so notifies the Congress. In the event that the Committee on International Relations of the House of Representatives or the Committee on Foreign Relations of the Senate reports a joint resolution to take any action with respect to any such extension, such joint resolution will be considered in the House or Senate, as the case may be, under procedures identical to those provided for the consideration of resolutions pursuant to section 130 of this Act: *And additionally provided*, That the Commission is authorized to (A) make a single finding under this subsection for more than a single application or request, where the applications or requests involve exports to the same country, in the same general time frame, of similar significance for nuclear explosive purposes and under reasonably similar circumstances and (B) make a finding under this subsection that there is no material changed circumstance associated with a new application or request from those existing at the time of the last application or request for an export to the same country, where the prior application or request was approved by the Commission using all applicable procedures of this section, and such finding of no material changed circumstance shall be deemed to satisfy the requirement of this paragraph for findings of the Commission. The decision not to make any such finding in lieu of the findings which would otherwise be required to be made under this paragraph shall not be subject to judicial review: *And provided further*, That nothing contained in this section is intended to require the Commission independently to conduct or prohibit the Commission from independently conducting country or site specific visitations in the Commission's consideration of the application of IAEA safeguards.

Post, p. 136.

42 USC 2154.

Extension, notice to Congress.

Post, p. 139.

Findings.

Judicial review, exception.

"b. (1) Timely consideration shall be given by the Commission to requests for export licenses and exemptions and such requests shall be granted upon a determination that all applicable statutory requirements have been met.

Presidential review.

"(2) If, after receiving the executive branch judgment that the issuance of a proposed export license will not be inimical to the common defense and security, the Commission does not issue the proposed license on a timely basis because it is unable to make the statutory determinations required under this Act, the Commission shall publicly issue its decision to that effect, and shall submit the license application to the President. The Commission's decision shall include an explanation of the basis for the decision and any dissenting or separate views. If, after receiving the proposed license application and reviewing the Commission's decision, the President determines that withholding the proposed export would be seriously prejudicial to the achievement of United States non-proliferation objectives, or would otherwise jeopardize the common defense and security, the proposed export may be authorized by Executive order: *Provided*, That prior to any such export, the President shall submit the Executive order, together with his explanation of why, in light of the Commission's decision, the export should nonetheless be made, to the Congress for a period of sixty days of continuous session (as defined in subsection 130 g.) and shall be referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, but any such proposed export shall not occur if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that it does not favor the proposed export. Any such Executive order shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions: *And provided further*, That the procedures established pursuant to subsection (b) of section 304 of the Nuclear Non-Proliferation Act of 1978 shall provide that the Commission shall immediately initiate review of any application for a license under this section and to the maximum extent feasible shall expeditiously process the application concurrently with the executive branch review, while awaiting the final executive branch judgment. In initiating its review, the Commission may identify a set of concerns and requests for information associated with the projected issuance of such license and shall transmit such concerns and requests to the executive branch which shall address such concerns and requests in its written communications with the Commission. Such procedures shall also provide that if the Commission has not completed action on the application within sixty days after the receipt of an executive branch judgment that the proposed export or exemption is not inimical to the common defense and security or that any export in the category to which the proposed export belongs would not be inimical to the common defense and security because it lacks significance for nuclear explosive purposes, the Commission shall inform the applicant in writing of the reason for delay and provide follow-up reports as appropriate. If the Commission has not completed action by the end of an additional sixty days (a total of one hundred and twenty days from receipt of the executive branch judgment), the President may authorize the proposed export by Executive order, upon a finding that further delay would be excessive and upon making the findings required for such Presidential authorizations under this subsection, and subject to the Congressional review procedures set forth herein. However, if the Commission has commenced procedures for public

Report to Congress and congressional committees.

Post, p. 139.

Review.

Concerns and requests, transmittal to executive branch.

participation regarding the proposed export under regulations promulgated pursuant to subsection (b) of section 304 of the Nuclear Non-Proliferation Act of 1978, or—within sixty days after receipt of the executive branch judgment on the proposed export—the Commission has identified and transmitted to the executive branch a set of additional concerns or requests for information, the President may not authorize the proposed export until sixty days after public proceedings are completed or sixty days after a full executive branch response to the Commission's additional concerns or requests has been made consistent with subsection a. (1) of this section: *Provided further*, That nothing in this section shall affect the right of the Commission to obtain data and recommendations from the Secretary of State at any time as provided in subsection a. (1) of this section.

Referral to congressional committees

"c. In the event that the House of Representatives or the Senate passes a joint resolution which would adopt one or more additional export criteria, or would modify any existing export criteria under this Act, any such joint resolution shall be referred in the other House to the Committee on Foreign Relations of the Senate or the Committee on International Relations of the House of Representatives, as the case may be, and shall be considered by the other House under applicable procedures provided for the consideration of resolutions pursuant to section 130 of this Act.". *Post*, p. 139

Regulations. 42 USC 2155a.

(b) Within one hundred and twenty days of the date of enactment of this Act, the Commission shall, after consultations with the Secretary of State, promulgate regulations establishing procedures (1) for the granting, suspending, revoking, or amending of any nuclear export license or exemption pursuant to its statutory authority; (2) for public participation in nuclear export licensing proceedings when the Commission finds that such participation will be in the public interest and will assist the Commission in making the statutory determinations required by the 1954 Act, including such public hearings and access to information as the Commission deems appropriate: *Provided*, That judicial review as to any such finding shall be limited to the determination of whether such finding was arbitrary and capricious; (3) for a public written Commission opinion accompanied by the dissenting or separate views of any Commissioner, in those proceedings where one or more Commissioners have dissenting or separate views on the issuance of an export license; and (4) for public notice of Commission proceedings and decisions, and for recording of minutes and votes of the Commission: *Provided further*, That until the regulations required by this subsection have been promulgated, the Commission shall implement the provisions of this Act under temporary procedures established by the Commission.

Hearings. 42 USC 2155a.

(c) The procedures to be established pursuant to subsection (b) shall constitute the exclusive basis for hearings in nuclear export licensing proceedings before the Commission and, notwithstanding section 189 a. of the 1954 Act, shall not require the Commission to grant any person an on-the-record hearing in such a proceeding. 42 USC 2239.

Regulations. 42 USC 2156a.

(d) Within sixty days of the date of enactment of this Act, the Commission shall, in consultation with the Secretary of State, the Secretary of Energy, the Secretary of Defense, and the Director, promulgate (and may from time to time amend) regulations establishing the levels of physical security which in its judgment are no less strict than those established by any international guidelines to which the United States subscribes and which in its judgment will provide adequate protection for facilities and material referred to in paragraph (3) of section 127 of the 1954 Act taking into consideration variations in risks to security as appropriate. *Post*, p. 136.

CRITERIA GOVERNING UNITED STATES NUCLEAR EXPORTS

SEC. 305. Chapter 11 of the 1954 Act, as amended by section 304, is further amended by adding at the end thereof the following:

42 USC 2156. "SEC. 127. CRITERIA GOVERNING UNITED STATES NUCLEAR EXPORTS.—"The United States adopts the following criteria which, in addition to other requirements of law, will govern exports for peaceful nuclear uses from the United States of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology:

"(1) IAEA safeguards as required by Article III(2) of the Treaty will be applied with respect to any such material or facilities proposed to be exported, to any such material or facilities previously exported and subject to the applicable agreement for cooperation, and to any special nuclear material used in or produced through the use thereof.

"(2) No such material, facilities, or sensitive nuclear technology proposed to be exported or previously exported and subject to the applicable agreement for cooperation, and no special nuclear material produced through the use of such materials, facilities, or sensitive nuclear technology, will be used for any nuclear explosive device or for research on or development of any nuclear explosive device.

"(3) Adequate physical security measures will be maintained with respect to such material or facilities proposed to be exported and to any special nuclear material used in or produced through the use thereof. Following the effective date of any regulations promulgated by the Commission pursuant to section 304(d) of the Nuclear Non-Proliferation Act of 1978, physical security measures shall be deemed adequate if such measures provide a level of protection equivalent to that required by the applicable regulations.

"(4) No such materials, facilities, or sensitive nuclear technology proposed to be exported, and no special nuclear material produced through the use of such material, will be retransferred to the jurisdiction of any other nation or group of nations unless the prior approval of the United States is obtained for such retransfer. In addition to other requirements of law, the United States may approve such retransfer only if the nation or group of nations designated to receive such retransfer agrees that it shall be subject to the conditions required by this section.

"(5) No such material proposed to be exported and no special nuclear material produced through the use of such material will be reprocessed, and no irradiated fuel elements containing such material removed from a reactor shall be altered in form or content, unless the prior approval of the United States is obtained for such reprocessing or alteration.

"(6) No such sensitive nuclear technology shall be exported unless the foregoing conditions shall be applied to any nuclear material or equipment which is produced or constructed under the jurisdiction of the recipient nation or group of nations by or through the use of any such exported sensitive nuclear technology.".

ADDITIONAL EXPORT CRITERION AND PROCEDURES

SEC. 306. Chapter 11 of the 1954 Act, as amended by sections 304 and 305, is further amended by adding at the end thereof the following:

"SEC. 128. ADDITIONAL EXPORT CRITERION AND PROCEDURES.—

42 USC 2157.

"a. (1) As a condition of continued United States export of source material, special nuclear material, production or utilization facilities, and any sensitive nuclear technology to non nuclear-weapon states, no such export shall be made unless IAEA safeguards are maintained with respect to all peaceful nuclear activities in, under the jurisdiction of, or carried out under the control of such state at the time of the export.

"(2) The President shall seek to achieve adherence to the foregoing criterion by recipient non-nuclear-weapon states.

Export applications, criterion enforcement.

"b. The criterion set forth in subsection a. shall be applied as an export criterion with respect to any application for the export of materials, facilities, or technology specified in subsection a. which is filed after eighteen months from the date of enactment of this section, or for any such application under which the first export would occur at least twenty-four months after the date of enactment of this section, except as provided in the following paragraphs:

Report to congressional committees.

"(1) If the Commission or the Department of Energy, as the case may be, is notified that the President has determined that failure to approve an export to which this subsection applies because such criterion has not yet been met would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security, the license or authorization may be issued subject to other applicable requirements of law: *Provided*, That no such export of any production or utilization facility or of any source or special nuclear material (intended for use as fuel in any production or utilization facility) which has been licensed or authorized pursuant to this subsection shall be made to any non-nuclear-weapon state which has failed to meet such criterion until the first such license or authorization with respect to such state is submitted to the Congress (together with a detailed assessment of the reasons underlying the President's determination, the judgment of the executive branch required under section 126 of this Act, and any Commission opinion and views) for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act) and referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, but such export shall not occur if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that the Congress does not favor the proposed export. Any such license or authorization shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions.

Ante, p. 131.

Post, p. 139.

Congressional disapproval, resolution.

"(2) If the Congress adopts a resolution of disapproval pursuant to paragraph (1), no further export of materials, facilities, or technology specified in subsection a. shall be permitted for the remainder of that Congress, unless such state meets the criterion or the President notifies the Congress that he has determined that significant progress has been made in achieving adherence to such criterion by such state or that United States foreign policy interests dictate reconsideration and the Congress, pursuant to the procedure of paragraph (1), does not adopt a concurrent resolution stating in substance that it disagrees with the President's determination.

Export authorizations, congressional review.

"(3) If the Congress does not adopt a resolution of disapproval with respect to a license or authorization submitted pursuant to paragraph (1), the criterion set forth in subsection a. shall not be applied as an export criterion with respect to exports of materials, facilities and technology specified in subsection a. to that state: *Provided*, That the first license or authorization with respect to that state which is issued pursuant to this paragraph after twelve months from the elapse of the sixty-day period specified in paragraph (1), and the first such license or authorization which is issued after each twelve-month period thereafter, shall be submitted to the Congress for review pursuant to the procedures specified in paragraph (1): *Provided further*, That if the Congress adopts a resolution of disapproval during any review period provided for by this paragraph, the provisions of paragraph (2) shall apply with respect to further exports to such state.".

CONDUCT RESULTING IN TERMINATION OF NUCLEAR EXPORTS

Export terminations, criterion. 42 USC 2158.

SEC. 307. Chapter 11 of the 1954 Act, as amended by sections 304, 305, and 306, is further amended by adding at the end thereof:

"SEC. 129. CONDUCT RESULTING IN TERMINATION OF NUCLEAR EXPORTS.--

"No nuclear materials and equipment or sensitive nuclear technology shall be exported to—

"(1) any non-nuclear-weapon state that is found by the President to have, at any time after the effective date of this section,

"(A) detonated a nuclear explosive device; or

"(B) terminated or abrogated IAEA safeguards; or

"(C) materially violated an IAEA safeguards agreement; or

"(D) engaged in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices, and has failed to take steps which, in the President's judgment, represent sufficient progress toward terminating such activities; or

"(2) any nation or group of nations that is found by the President to have, at any time after the effective date of this section,

"(A) materially violated an agreement for cooperation with the United States, or, with respect to material or equipment not supplied under an agreement for cooperation, materially violated the terms under which such material or equipment was supplied or the terms of any commitments obtained with respect thereto pursuant to section 402(a) of the Nuclear Non-Proliferation Act of 1978; or

"(B) assisted, encouraged, or induced any non-nuclear-weapon state to engage in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices, and has failed to take steps which, in the President's judgment, represent sufficient progress toward terminating such assistance, encouragement, or inducement; or

"(C) entered into an agreement after the date of enactment of this section for the transfer of reprocessing equipment, materials, or technology to the sovereign control of a non-nuclear-weapon state except in connection with an international fuel cycle evaluation in which the United States is a participant or pursuant to a subsequent international agreement or understanding to which the United States subscribes;

unless the President determines that cessation of such exports would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security: *Provided*, That prior to the effective date of any such determination, the President's determination, together with a report containing the reasons for his determination, shall be submitted to the Congress and referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act), but any such determination shall not become effective if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that it does not favor the determination. Any such determination shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions.".

Report to Congress.

Infra.

CONGRESSIONAL REVIEW PROCEDURES

SEC. 308. Chapter 11 of the 1954 Act, as amended by sections 304, 305, 306, and 307, is further amended by adding at the end thereof the following:

"SEC. 130. CONGRESSIONAL REVIEW PROCEDURES.—

42 USC 2159.
Congressional committee reports.

"a. Not later than forty-five days of continuous session of Congress after the date of transmittal to the Congress of any submission of the President required by subsection 123 d., 126 a. (2), 126 b. (2), 128 b., 129, 131 a. (3), or 131 f. (1)(A) of this Act, the Committee on Foreign Relations of the Senate and the Committee on International Relations of the House of Representatives, and in addition, in the case of a proposed agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., the Committee on Armed Services of the House of Representatives and the Committee on Armed Services of the Senate, shall each submit a report to its respective House on its views and recommendations respecting such Presidential submission together with a resolution, as defined in subsection f., stating in substance that the Congress approves or disapproves such submission, as the case may be: *Provided*, That if any such committee has not reported such a resolution at the end of such forty-five day period, such committee shall be deemed to be discharged from further consideration of such submission and if, in the case of a proposed agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c. of this Act, the other relevant committee of that House has reported such a resolution, such committee shall be deemed discharged from further consideration of that resolution. If no such resolution has been reported at the end of such period, the first resolution, as defined in subsection f., which is introduced within five days thereafter within such House shall be placed on the appropriate calendar of such House.

Post, p. 142.
Ante, pp. 131, 137, 138, 127.

42 USC 2121, 2164.

"b. When the relevant committee or committees have reported such a resolution (or have been discharged from further consideration of such a resolution pursuant to subsection a.) or when a resolution has been introduced and placed on the appropriate calendar pursuant to subsection a., as the case may be, it is at any time thereafter in order (even though a previous motion to the same effect has been disagreed to) for any Member of the respective House to move to proceed to the consideration of the resolution. The motion is highly privileged and is not debatable. The motion shall not be subject to amendment, or to a motion to postpone, or to a motion to proceed to the consideration of other business. A motion to reconsider the vote by which the motion is agreed to or disagreed to shall not be in order. If a motion to proceed to the consideration of the resolution is agreed to, the resolution shall remain the unfinished business of the respective House until disposed of.

"c. Debate on the resolution, and on all debatable motions and appeals in connection therewith, shall be limited to not more than ten hours, which shall be divided equally between individuals favoring and individuals opposing the resolution. A motion further to limit debate is in order and not debatable. An amendment to a motion to postpone, or a motion to recommit the resolution, or a motion to proceed to the consideration of other business is not in order. A motion to reconsider the vote by which the resolution is agreed to or disagreed to shall not be in order. No amendment to any concurrent resolution pursuant to the procedures of this section is in order except as provided in subsection d.

"d. Immediately following (1) the conclusion of the debate on such concurrent resolution, (2) a single quorum call at the conclusion of debate if requested in accordance with the rules of the appropriate House, and (3) the consideration of an amendment introduced by the Majority Leader or his designee to insert the phrase, 'does not' in lieu of the word 'does' if the resolution under consideration is a concurrent resolution of approval, the vote on final approval of the resolution shall occur.

"e. Appeals from the decisions of the Chair relating to the application of the rules of the Senate or the House of Representatives, as the case may be, to the procedure relating to such a resolution shall be decided without debate.

"Resolution."

"f. For the purposes of subsections a. through e. of this section, the term 'resolution' means a concurrent resolution of the Congress, the matter after the resolving clause of which is as follows: 'That the Congress (does or does not) favor the transmitted to the Congress by the President on , .', the blank spaces therein to be appropriately filled, and the affirmative or negative phrase within the parenthetical to be appropriately selected.

Continuous sessions of Congress, computation.

"g. For the purposes of this section—

"(1) continuity of session is broken only by an adjournment of Congress sine die; and

"(2) the days on which either House is not in session because of an adjournment of more than three days to a day certain are excluded in the computation of any period of time in which Congress is in continuous session.

"h. This section is enacted by Congress—

"(1) as an exercise of the rulemaking power of the Senate and the House of Representatives, respectively, and as such they are deemed a part of the rules of each House, respectively, but applicable only with respect to the procedure to be followed in that House in the case of resolutions described by subsection f. of this section; and they supersede other rules only to the extent that they are inconsistent therewith; and

"(2) with full recognition of the constitutional right of either House to change the rules (so far as relating to the procedure of that House) at any time, in the same manner and to the same extent as in the case of any other rule of that House.".

COMPONENT AND OTHER PARTS OF FACILITIES

SEC. 309. (a) Section 109 of the 1954 Act is amended to read as follows: 42 USC 2139.

"SEC. 109. COMPONENT AND OTHER PARTS OF FACILITIES.—

"a. With respect to those utilization and production facilities which are so determined by the Commission pursuant to subsection 11 v. (2) or 11 cc. (2) the Commission may issue general licenses for domestic activities required to be licensed under section 101, if the Commission determines in writing that such general licensing will not constitute an unreasonable risk to the common defense and security.

Domestic activities licenses, issuance authorization. 42 USC 2139.

"b. After consulting with the Secretaries of State, Energy, and Commerce and the Director, the Commission is authorized and directed to determine which component parts as defined in subsection 11 v. (2) or 11 cc. (2) and which other items or substances are especially relevant from the standpoint of export control because of their significance for nuclear explosive purposes. Except as provided in section 126 b. (2), no such component, substance, or item which is so determined by the Commission shall be exported unless the Commission issues a general or specific license for its export after finding, based on a reasonable judgment of the assurances provided and other information available to the Federal Government, including the Commission, that the following criteria or their equivalent are met: (1) IAEA safeguards as required by Article III (2) of the Treaty will be applied with respect to such component, substance, or item; (2) no such component, substance, or item will be used for any nuclear explosive device or for research on or development of any nuclear explosive device; and (3) no such component, substance, or item will be retransferred to the jurisdiction of any other nation or group of nations unless the prior consent of the United States is obtained for such retransfer; and after determining in writing that the issuance of each such general or specific license or category of licenses will not be inimical to the common defense and security: *Provided*, That a specific license shall not be required for an export pursuant to this section if the component, item or substance is covered by a facility license issued pursuant to section 126 of this Act.

Export licenses.

Ante, p. 131.

"c. The Commission shall not issue an export license under the authority of subsection b. if it is advised by the executive branch, in accordance with the procedures established under subsection 126 a., that the export would be inimical to the common defense and security of the United States.".

(b) The Commission, not later than one hundred and twenty days after the date of the enactment of this Act, shall publish regulations to implement the provisions of subsections b. and c. of section 109 of the 1954 Act. Among other things, these regulations shall provide for the prior consultation by the Commission with the Department of State, the Department of Energy, the Department of Defense, the Department of Commerce, and the Arms Control and Disarmament Agency.

Regulations. 42 USC 2139a.

Supra.

(c) The President, within not more than one hundred and twenty days after the date of enactment of this Act, shall publish procedures regarding the control by the Department of Commerce over all export items, other than those licensed by the Commission, which could

Export control procedures, Presidential publications. 42 USC 2139a.

be, if used for purposes other than those for which the export is intended, of significance for nuclear explosive purposes. Among other things, these procedures shall provide for prior consultations, a required, by the Department of Commerce with the Department o State, the Arms Control and Disarmament Agency, the Commissio the Department of Energy, and the Department of Defense.

Savings provision.
42 USC 2139 note.
Ante, p. 141.

(d) The amendments to section 109 of the 1954 Act made by this section shall not affect the approval of exports contracted for prior to November 1, 1977, which are made within one year of the date of enactment of such amendments.

TITLE IV—NEGOTIATION OF FURTHER EXPORT CONTROLS

COOPERATION WITH OTHER NATIONS

42 USC 2153.

SEC. 401. Section 123 of the 1954 Act is amended to read as follows:

"SEC. 123. COOPERATION WITH OTHER NATIONS.—

42 USC 2073, 2074, 2077, 2094, 2112, 2121, 2133, 2134, 2164.
Cooperative agreements, submittal to President.
Contents.

"No cooperation with any nation, group of nations or regional defense organization pursuant to section 53, 54 a., 57, 64, 82, 91, 103, 104, or 144 shall be undertaken until—

"a. the proposed agreement for cooperation has been submitted to the President, which proposed agreement shall include the terms, conditions, duration, nature, and scope of the cooperation; and shall include the following requirements:

"(1) a guaranty by the cooperating party that safeguards as set forth in the agreement for cooperation will be maintained with respect to all nuclear materials and equipment transferred pursuant thereto, and with respect to all special nuclear material used in or produced through the use of such nuclear materials and equipment, so long as the material or equipment remains under the jurisdiction or control of the cooperating party, irrespective of the duration of other provisions in the agreement or whether the agreement is terminated or suspended for any reason;

"(2) in the case of non-nuclear-weapon states, a requirement, as a condition of continued United States nuclear supply under the agreement for cooperation, that IAEA safeguards be maintained with respect to all nuclear materials in all peaceful nuclear activities within the territory of such state, under its jurisdiction, or carried out under its control anywhere;

"(3) except in the case of those agreements for cooperation arranged pursuant to subsection 91 c., a guaranty by the cooperating party that no nuclear materials and equipment or sensitive nuclear technology to be transferred pursuant to such agreement, and no special nuclear material produced through the use of any nuclear materials and equipment or sensitive nuclear technology transferred pursuant to such agreement, will be used for any nuclear explosive device, or for research on or development of any nuclear explosive device, or for any other military purpose;

"(4) except in the case of those agreements for cooperation arranged pursuant to subsection 91 c. and agreements for cooperation with nuclear-weapon states, a stipulation that the United States shall have the right to require the return of any nuclear materials and equipment transferred pursuant thereto and any special nuclear material produced through the use thereof if the cooperating party detonates a nuclear explosive device or terminates or abrogates an agreement providing for IAEA safeguards;

"(5) a guaranty by the cooperating party that any material or any Restricted Data transferred pursuant to the agreement for cooperation and, except in the case of agreements arranged pursuant to subsection 91 c., 144 b. or 144 c., any production or utilization facility transferred pursuant to the agreement for cooperation or any special nuclear material produced through the use of any such facility or through the use of any material transferred pursuant to the agreement, will not be transferred to unauthorized persons or beyond the jurisdiction or control of the cooperating party without the consent of the United States;

42 USC 2121, 2164.

"(6) a guaranty by the cooperating party that adequate physical security will be maintained with respect to any nuclear material transferred pursuant to such agreement and with respect to any special nuclear material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to such agreement;

"(7) except in the case of agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., a guaranty by the cooperating party that no material transferred pursuant to the agreement for cooperation and no material used in or produced through the use of any material, production facility, or utilization facility transferred pursuant to the agreement for cooperation will be reprocessed, enriched or (in the case of plutonium, uranium 233, or uranium enriched to greater than twenty percent in the isotope 235, or other nuclear materials which have been irradiated) otherwise altered in form or content without the prior approval of the United States;

"(8) except in the case of agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., a guaranty by the cooperating party that no plutonium, no uranium 233, and no uranium enriched to greater than twenty percent in the isotope 235, transferred pursuant to the agreement for cooperation, or recovered from any source or special nuclear material so transferred or from any source or special nuclear material used in any production facility or utilization facility transferred pursuant to the agreement for cooperation, will be stored in any facility that has not been approved in advance by the United States; and

"(9) except in the case of agreements for cooperation arranged pursuant to subsection 91 c., 144 b. or 144 c., a guaranty by the cooperating party that any special nuclear material, production facility, or utilization facility produced or constructed under the jurisdiction of the cooperating party by or through the use of any sensitive nuclear technology transferred pursuant to such agreement for cooperation will be subject to all the requirements specified in this subsection.

The President may exempt a proposed agreement for cooperation (except an agreement arranged pursuant to subsection 91 c., 144 b., or 144 c.) from any of the requirements of the foregoing sen-

Agreement requirements, Presidential exemptions.

Proposed cooperation agreements, submittal to President. Nuclear Proliferation Assessment Statement, submitted to President. 42 USC 2121, 2164.

tence if he determines that inclusion of any such requirement would be seriously prejudicial to the achievement of United States non-proliferation objectives or otherwise jeopardize the common defense and security. Except in the case of those agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., any proposed agreement for cooperation shall be negotiated by the Secretary of State, with the technical assistance and concurrence of the Secretary of Energy and in consultation with the Director of the Arms Control and Disarmament Agency ('the Director'); and after consultation with the Commission shall be submitted to the President jointly by the Secretary of State and the Secretary of Energy accompanied by the views and recommendations of the Secretary of State, the Secretary of Energy, the Nuclear Regulatory Commission, and the Director, who shall also provide to the President an unclassified Nuclear Proliferation Assessment Statement regarding the adequacy of the safeguards and other control mechanisms and the peaceful use assurances contained in the agreement for cooperation to ensure that any assistance furnished thereunder will not be used to further any military or nuclear explosive purpose. In the case of those agreements for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., any proposed agreement for cooperation shall be submitted to the President by the Secretary of Energy or, in the case of those agreements for cooperation arranged pursuant to subsection 91 c. or 144 b. which are to be implemented by the Department of Defense, by the Secretary of Defense;

"b. the President has approved and authorized the execution of the proposed agreement for cooperation and has made a determination in writing that the performance of the proposed agreement will promote, and will not constitute an unreasonable risk to, the common defense and security;

Submittal to congressional committees.

"c. the proposed agreement for cooperation (if not an agreement subject to subsection d.), together with the approval and determination of the President, has been submitted to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate for a period of thirty days of continuous session (as defined in subsection 130 g.): *Provided, however,* That these committees, after having received such agreement for cooperation, may by resolution in writing waive the conditions of all or any portion of such thirty-day period; and

Ante, p. 139.

42 USC 2073, 2074, 2133, 2134.

"d. the proposed agreement for cooperation (if arranged pursuant to subsection 91 c., 144 b., or 144 c., or if entailing implementation of section 53, 54 a., 103, or 104 in relation to a reactor that may be capable of producing more than five thermal megawatts or special nuclear material for use in connection therewith) has been submitted to the Congress, together with the approval and determination of the President, for a period of sixty days of continuous session (as defined in subsection 130 g. of this Act) and referred to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, and in addition, in the case of a proposed agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c., the Committee on Armed Services of the House of Representatives and the Committee on Armed Services of the Senate, but such proposed agreement for cooperation shall not become effective if during such sixty-day period the Congress adopts a concurrent resolution stating in substance that the Congress does not favor the proposed agreement for cooperation: *Provided*, That the sixty-day period shall not begin until a Nuclear Proliferation Assessment Statement prepared by the Director of the Arms Control and Disarmament Agency, when required by subsection 123 a., has been submitted to the Congress. Any such proposed agreement for cooperation shall be considered pursuant to the procedures set forth in section 130 of this Act for the consideration of Presidential submissions.

Ante, p. 142.
Ante, p. 139.

"Following submission of a proposed agreement for cooperation (except an agreement for cooperation arranged pursuant to subsection 91 c., 144 b., or 144 c.) to the Committee on International Relations of the House of Representatives and the Committee on Foreign Relations of the Senate, the Nuclear Regulatory Commission, the Department of State, the Department of Energy, the Arms Control and Disarmament Agency, and the Department of Defense shall, upon the request of either of those committees, promptly furnish to those committees their views as to whether the safeguards and other controls contained therein provide an adequate framework to ensure that any exports as contemplated by such agreement will not be inimical to or constitute an unreasonable risk to the common defense and security.

Agency views to congressional committees.
42 USC 2121, 2164.

"If, after the date of enactment of the Nuclear Non-Proliferation Act of 1978, the Congress fails to disapprove a proposed agreement for cooperation which exempts the recipient nation from the requirement set forth in subsection 123 a. (2), such failure to act shall constitute a failure to adopt a resolution of disapproval pursuant to subsection 128 b. (3) for purposes of the Commission's consideration of applications and requests under section 126 a. (2) and there shall be no congressional review pursuant to section 128 of any subsequent license or authorization with respect to that state until the first such license or authorization which is issued after twelve months from the elapse of the sixty-day period in which the agreement for cooperation in question is reviewed by the Congress.".

Ante, p. 137.
Ante, p. 131.

ADDITIONAL REQUIREMENTS

SEC. 402. (a) Except as specifically provided in any agreement for cooperation, no source or special nuclear material hereafter exported from the United States may be enriched after export without the prior approval of the United States for such enrichment: *Provided*, That the procedures governing such approvals shall be identical to those set forth for the approval of proposed subsequent arrangements under section 131 of the 1954 Act, and any commitments from the recipient which the Secretary of Energy and the Secretary of State deem necessary to ensure that such approval will be obtained prior to such enrichment shall be obtained prior to the submission of the executive branch judgment regarding the export in question and shall be set forth in such submission: *And provided further*, That no source or special nuclear material shall be exported for the purpose of enrichment or reactor fueling to any nation or group of nations which has, after the date of enactment of this Act, entered into a new or amended agreement for cooperation with the United States, except pursuant to such agreement.

Nuclear material enrichment, approval.
42 USC 2153a.
Ante, p. 127

(b) In addition to other requirements of law, no major critical component of any uranium enrichment, nuclear fuel reprocessing, or heavy

Enrichment facility components, export prohibition.

42 USC 2121, 2164.
"Major critical component."

water production facility shall be exported under any agreement for cooperation (except an agreement for cooperation pursuant to subsection 91 c., 144 b., or 144 c. of the 1954 Act) unless such agreement for cooperation specifically designates such components as items to be exported pursuant to the agreement for cooperation. For purposes of this subsection, the term "major critical component" means any component part or group of component parts which the President determines to be essential to the operation of a complete uranium enrichment, nuclear fuel reprocessing, or heavy water production facility.

PEACEFUL NUCLEAR ACTIVITIES

Export policies.
42 USC 2153b.

SEC. 403. The President shall take immediate and vigorous steps to seek agreement from all nations and groups of nations to commit themselves to adhere to the following export policies with respect to their peaceful nuclear activities and their participation in international nuclear trade:

(a) No nuclear materials and equipment and no sensitive nuclear technology within the territory of any nation or group of nations, under its jurisdiction, or under its control anywhere will be transferred to the jurisdiction of any other nation or group of nations unless the nation or group of nations receiving such transfer commits itself to strict undertakings including, but not limited to, provisions sufficient to ensure that—

(1) no nuclear materials and equipment and no nuclear technology in, under the jurisdiction of, or under the control of any non-nuclear-weapon state, shall be used for nuclear explosive devices for any purpose or for research on or development of nuclear explosive devices for any purpose, except as permitted by Article V, the Treaty;

(2) IAEA safeguards will be applied to all peaceful nuclear activities in, under the jurisdiction of, or under the control of any non-nuclear-weapon state;

(3) adequate physical security measures will be established and maintained by any nation or group of nations on all of its nuclear activities;

(4) no nuclear materials and equipment and no nuclear technology intended for peaceful purposes in, under the jurisdiction of, or under the control of any nation or group of nations shall be transferred to the jurisdiction of any other nation or group of nations which does not agree to stringent undertakings meeting the objectives of this section; and

(5) no nation or group of nations will assist, encourage, or induce any non-nuclear-weapon state to manufacture or otherwise acquire any nuclear explosive device.

Enriched nuclear material and sources, prohibition.
Proposed international agreements.
42 USC 2014.

(b)(1) No source or special nuclear material within the territory of any nation or group of nations, under its jurisdiction, or under its control anywhere will be enriched (as described in paragraph aa. (2) of section 11 of the 1954 Act) or reprocessed, no irradiated fuel elements containing such material which are to be removed from a reactor will be altered in form or content, and no fabrication or stockpiling involving plutonium, uranium 233, or uranium enriched to greater than 20 percent in the isotope 235 shall be performed except in a facility under effective international auspices and inspection, and any such irradiated fuel elements shall be transferred to such a facility as soon as practicable after removal from a reactor consistent with safety requirements. Such facilities shall be limited in number to the greatest extent feasible and shall be carefully sited and managed so as to minimize the proliferation and environmental risks associated with such facilities. In addition, there shall be conditions to limit the access of non-nuclear-weapon states other than the host country to sensitive nuclear technology associated with such facilities.

Enriched nuclear material, short-term storage. International inspection.

(2) Any facilities within the territory of any nation or group of nations, under its jurisdiction, or under its control anywhere for the necessary short-term storage of fuel elements containing plutonium, uranium 233, or uranium enriched to greater than 20 percent in the isotope 235 prior to placement in a reactor or of irradiated fuel elements prior to transfer as required in subparagraph (1) shall be placed under effective international auspices and inspection.

(c) Adequate physical security measures will be established and maintained with respect to all nuclear activities within the territory of each nation and group of nations, under its jurisdiction, or under its control anywhere, and with respect to any international shipment of significant quantities of source or special nuclear material or irradiated source or special nuclear material, which shall also be conducted under international safeguards.

(d) Nothing in this section shall be interpreted to require international control or supervision of any United States military activities.

RENEGOTIATION OF AGREEMENTS FOR COOPERATION

42 USC 2153c.

SEC. 404. (a) The President shall initiate a program immediately to renegotiate agreements for cooperation in effect on the date of enactment of this Act, or otherwise to obtain the agreement of parties to such agreements for cooperation to the undertakings that would be required for new agreements under the 1954 Act. To the extent that an agreement for cooperation in effect on the date of enactment of this Act with a cooperating party contains provisions equivalent to any or all of the criteria set forth in section 127 of the 1954 Act with respect to materials and equipment transferred pursuant thereto or with respect to any special nuclear material used in or produced through the use of any such material or equipment, any renegotiated agreement with that cooperating party shall continue to contain an equivalent provision with respect to such transferred materials and equipment and such special nuclear material. To the extent that an agreement for cooperation in effect on the date of enactment of this Act with a cooperating party does not contain provisions with respect to any nuclear materials and equipment which have previously been transferred under an agreement for cooperation with the United States and which are under the jurisdiction or control of the cooperating party and with respect to any special nuclear material which is used in or produced through the use thereof and which is under the jurisdiction or control of the cooperating party, which are equivalent to any or all of those required for new and amended agreements for cooperation under section 123 a. of the 1954 Act, the President shall vigorously seek to obtain the application of such provisions with respect to such nuclear materials and equipment and such special nuclear material. Nothing in this Act or in the 1954 Act shall be deemed to relinquish

Ante, p. 136.

Ante, p. 142.

any rights which the United States may have under any agreement for cooperation in force on the date of enactment of this Act.

Export agreement conditions and policy goals, Presidential review.
Ante, p. 142.

(b) The President shall annually review each of requirements (1) through (9) set forth for inclusion in agreements for cooperation under section 123 a. of the 1954 Act and the export policy goals set forth in section 401 to determine whether it is in the interest of United States non-proliferation objectives for any such requirements or export policies which are not already being applied as export criteria to be enacted as additional export criteria.

Presidential export criteria proposals, submittal to Congress.

(c) If the President proposes enactment of any such requirements or export policies as additional export criteria or to take any other action with respect to such requirements or export policy goals for the purpose of encouraging adherence by nations and groups of nations to such requirements and policies, he shall submit such a proposal together with an explanation thereof to the Congress.

(d) If the Committee on Foreign Relations of the Senate or the Committee on International Relations of the House of Representatives, after reviewing the President's annual report or any proposed legislation, determines that it is in the interest of United States non-proliferation objectives to take any action with respect to such requirements or export policy goals, it shall report a joint resolution to implement such determination. Any joint resolution so reported shall be considered in the Senate and the House of Representatives, respectively, under applicable procedures provided for the consideration of resolutions pursuant to subsection 130 b. through g. of the 1954 Act.

Ante, p. 139.

AUTHORITY TO CONTINUE AGREEMENTS

Savings provision.
42 USC 2153d.

SEC. 405. (a) The amendments to section 123 of the 1954 Act made by this Act shall not affect the authority to continue cooperation pursuant to agreements for cooperation entered into prior to the date of enactment of this Act.

(b) Nothing in this Act shall affect the authority to include dispute settlement provisions, including arbitration, in any agreement made pursuant to an Agreement for Cooperation.

REVIEW

42 USC 2160a.

SEC. 406. No court or regulatory body shall have any jurisdiction under any law to compel the performance of or to review the adequacy of the performance of any Nuclear Proliferation Assessment Statement called for in this Act or in the 1954 Act.

PROTECTION OF THE ENVIRONMENT

42 USC 2153e.

SEC. 407. The President shall endeavor to provide in any agreement entered into pursuant to section 123 of the 1954 Act for cooperation between the parties in protecting the international environment from radioactive, chemical or thermal contamination arising from peaceful nuclear activities.

TITLE V—UNITED STATES ASSISTANCE TO DEVELOPING COUNTRIES

POLICY; REPORT

Nuclear and non-nuclear energy, resource development.
22 USC 3261.

SEC. 501. The United States shall endeavor to cooperate with other nations, international institutions, and private organizations in establishing programs to assist in the development of non-nuclear energy resources, to cooperate with both developing and industrialized nations in protecting the international environment from contamination arising from both nuclear and non-nuclear energy activities, and shall seek to cooperate with and aid developing countries in meeting their energy needs through the development of such resources and the application of non-nuclear technologies consistent with the economic factors, the material resources of those countries, and environmental protection. The United States shall additionally seek to encourage other industrialized nations and groups of nations to make commitments for similar cooperation and aid to developing countries. The President shall report annually to Congress on the level of other nations' and groups of nations' commitments under such program and the relation of any such commitments to United States efforts under this title. In cooperating with and providing such assistance to developing countries, the United States shall give priority to parties to the Treaty.

Presidential report to Congress.

PROGRAMS

SEC. 502. (a) The United States shall initiate a program, consistent with the aims of section 501, to cooperate with developing countries for the purpose of—

Developing countries, energy development programs.

(1) meeting the energy needs required for the development of such countries;

(2) reducing the dependence of such countries on petroleum fuels, with emphasis given to utilizing solar and other renewable energy resources; and

(3) expanding the energy alternatives available to such countries.

(b) Such program shall include cooperation in evaluating the energy alternatives of developing countries, facilitating international trade in energy commodities, developing energy resources, and applying suitable energy technologies. The program shall include both general and country-specific energy assessments and cooperative projects in resource exploration and production, training, research and development.

Assessment and cooperative projects.

(c) As an integral part of such program, the Department of Energy, under the general policy guidance of the Department of State and in cooperation with the Agency for International Development and other Federal agencies as appropriate, shall initiate, as soon as practicable, a program for the exchange of United States scientists, technicians, and energy experts with those of developing countries to implement the purposes of this section.

Experts, exchange.

(d) For the purposes of carrying out this section, there is authorized to be appropriated such sums as are contained in annual authorization Acts for the Department of Energy, including such sums which have been authorized for such purposes under previous legislation.

Appropriation authorization.

(e) Under the direction of the President, the Secretary of State shall ensure the coordination of the activities authorized by this title with other related activities of the United States conducted abroad, including the programs authorized by sections 103(c), 106(a)(2), and 119 of the Foreign Assistance Act of 1961.

22 USC 2151a, 2151d, 2151q.

REPORT

SEC. 503. Not later than twelve months after the date of enactment of this Act, the President shall report to the Congress on the feasibility of expanding the cooperative activities established pursuant to section

Presidential report to Congress.
22 USC 3262 note.

502(c) into an international cooperative effort to include a scientific peace corps designed to encourage large numbers of technically trained volunteers to live and work in developing countries for varying periods of time for the purpose of engaging in projects to aid in meeting the energy needs of such countries through the search for and utilization of indigenous energy resources and the application of suitable technology, including the widespread utilization of renewable and unconventional energy technologies. Such report shall also include a discussion of other mechanisms to conduct a coordinated international effort to develop, demonstrate, and encourage the utilization of such technologies in developing countries.

TITLE VI—EXECUTIVE REPORTING

REPORTS OF THE PRESIDENT

Governmental nuclear non-proliferation activities.
22 USC 3281.

SEC. 601. (a) The President shall review all activities of Government departments and agencies relating to preventing proliferation and shall make a report to Congress in January of 1979 and annually in January of each year thereafter on the Government's efforts to prevent proliferation. This report shall include but not be limited to—

(1) a description of the progress made toward—

(A) negotiating the initiatives contemplated in sections 104 and 105 of this Act;

(B) negotiating the international arrangements or other mutual undertakings contemplated in section 403 of this Act;

(C) encouraging non-nuclear-weapon states that are not party to the Treaty to adhere to the Treaty or, pending such adherence, to enter into comparable agreements with respect to safeguards and to foreswear the development of any nuclear explosive devices, and discouraging nuclear exports to non-nuclear-weapon states which have not taken such steps;

(D) strengthening the safeguards of the IAEA as contemplated in section 201 of this Act; and

(E) renegotiating agreements for cooperation as contemplated in section 404(a) of this Act;

(2) an assessment of the impact of the progress described in paragraph (1) on the non-proliferation policy of the United States; an explanation of the precise reasons why progress has not been made on any particular point and recommendations with respect to appropriate measures to encourage progress; and a statement of what legislative modifications, if any, are necessary in his judgment to achieve the non-proliferation policy of the United States;

(3) a determination as to which non-nuclear-weapon states with which the United States has an agreement for cooperation in effect or under negotiation, if any, have—

(A) detonated a nuclear device; or

(B) refused to accept the safeguards of the IAEA on all of their peaceful nuclear activities; or

(C) refused to give specific assurances that they will not manufacture or otherwise acquire any nuclear explosive device; or

(D) engaged in activities involving source or special nuclear material and having direct significance for the manufacture or acquisition of nuclear explosive devices;

(4) an assessment of whether any of the policies set forth in this Act have, on balance, been counterproductive from the standpoint of preventing proliferation; and

(5) a description of the progress made toward establishing procedures to facilitate the timely processing of requests for subsequent arrangements and export licenses in order to enhance the reliability of the United States in meeting its commitments to supply nuclear reactors and fuel to nations which adhere to effective non-proliferation policies.

Current civil agreements, analysis.

(b) In the first report required by this section, the President shall analyze each civil agreement for cooperation negotiated pursuant to section 123 of the 1954 Act, and shall discuss the scope and adequacy of the requirements and obligations relating to safeguards and other controls therein.

ADDITIONAL REPORTS

Reports to Congress. Governmental nuclear non-proliferation activities. 22 USC 3282.

SEC. 602. (a) The annual reports to the Congress by the Commission and the Department of Energy which are otherwise required by law shall also include views and recommendations regarding the policies and actions of the United States to prevent proliferation which are the statutory responsibility of those agencies. The Department's report shall include a detailed analysis of the proliferation implications of advanced enrichment and reprocessing techniques, advanced reactors, and alternative nuclear fuel cycles. This part of the report shall include a comprehensive version which includes any relevant classified information and a summary unclassified version.

(b) The reporting requirements of this title are in addition to and not in lieu of any other reporting requirements under applicable law.

(c) The Department of State, the Arms Control and Disarmament Agency, the Department of Commerce, the Department of Energy, and the Commission shall keep the Committees on Foreign Relations and Governmental Affairs of the Senate and the Committee on International Relations of the House of Representatives fully and currently informed with respect to their activities to carry out the purposes and policies of this Act and to otherwise prevent proliferation, and with respect to the current activities of foreign nations which are of significance from the proliferation standpoint.

(d) Any classified portions of the reports required by this Act shall be submitted to the Senate Foreign Relations Committee and the House International Relations Committee.

Report to Congress. Nuclear non-proliferation policies, study.

(e) Three years after enactment of this Act, the Comptroller General shall complete a study and report to the Congress on the implementation and impact of this Act on the nuclear non-proliferation policies, purposes, and objectives of this Act. The Secretaries of State, Energy, Defense, and Commerce and the Commission and the Director shall cooperate with the Comptroller General in the conduct of the study. The report shall contain such recommendations as the Comptroller General deems necessary to support the nuclear non-proliferation policies, purposes, and objectives of this Act.

SAVING CLAUSE

42 USC 2153f. **Sec. 603.** (a) All orders, determinations, rules, regulations, permits, contracts, agreements, certificates, licenses, and privileges—

(1) which have been issued, made, granted, or allowed to become effective in the exercise of functions which are the subject of this Act, by (i) any agency or officer, or part thereof, in exercising the functions which are affected by this Act, or (ii) any court of competent jurisdiction, and

(2) which are in effect at the time this Act takes effect, shall continue in effect according to their terms until modified, terminated, superseded, set aside, or repealed as the case may be, by the parties thereto or by any court of competent jurisdiction.

42 USC 2153f. 42 USC 2121, 2164. (b) Nothing in this Act shall affect the procedures or requirements applicable to agreements for cooperation entered into pursuant to sections 91 c., 144 b., or 144 c. of the 1954 Act or arrangements pursuant thereto as it was in effect immediately prior to the date of enactment of this Act.

Effective date. 22 USC 3201 note. (c) Except where otherwise provided, the provisions of this Act shall take effect immediately upon enactment regardless of any requirement for the promulgation of regulations to implement such provisions.

Approved March 10, 1978.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 95-537 (Comm. on International Relations).
SENATE REPORT No. 95-467 accompanying S. 897 (Comms. on Governmental Affairs, Energy and Natural Resources, and Foreign Relations).
CONGRESSIONAL RECORD:
Vol. 123 (1977): Aug. 5, S. 897 considered in Senate.
Sept. 22, 28, considered and passed House.
Nov. 2, S. 897 considered in Senate.
Vol. 124 (1973): Feb. 2, 7, considered and passed Senate, amended, in lieu of S. 897.
Feb. 9, House concurred in Senate amendment.
WEEKLY COMPILATION OF PRESIDENTIAL DOCUMENTS:
Vol. 14, No. 10 (1978): Mar. 10, Presidential statement.

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LIST OF PREVIOUS GAO

REPORTS ON NUCLEAR NON-PROLIFERATION ISSUES

Title	Date Issued
International Nuclear Safeguards Need Further Improvement (C-ID-81-4) (Confidential)	February 13, 1981
Evaluation of Selected Features of U.S. Nuclear Non-Proliferation Law and Policy (EMD-81-9)	November 18, 1980
U.S. Nuclear Non-Proliferation Policy: Impact on Exports and Nuclear Industry Could Not Be Determined (ID-80-42)	September 23, 1980
U.S. Fast Breeder Reactor Program Needs Direction (EMD-80-81)	September 22, 1980
Evaluation of U.S. Efforts to Promote the Nuclear Non-Proliferation Treaty (ID-80-41)	July 31, 1980
U.S. Energy Assistance to Developing Countries: Clarification and Coordination Needed (ID-80-7)	March 28, 1980
Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons (EMD-80-38)	March 18, 1980
Comments on the Administration's White Paper: "The Clinch River Breeder Reactor Project--An End to the Impasse" (EMD-79-89)	July 10, 1979
Federal Facilities for Storing Spent Nuclear Fuel--Are They Needed? (EMD-79-82)	June 27, 1979
Nuclear Reactor Options to Reduce the Risk of Proliferation and to Succeed Current Light Water Reactor Technology (EMD-79-15)	May 23, 1979

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Title	Date Issued
Questions on the Future of Nuclear Power: Implications and Trade-Offs (EMD-79-56)	May 21, 1979
The Clinch River Breeder Reactor --Should the Congress Continue to Fund It? (EMD-79-62)	May 7, 1979
Difficulties in Determining if Nuclear Training of Foreigners Contributes to Weapons Proliferation (ID-79-2)	April 23, 1979
The United States and International Energy Issues (EMD-78-105)	December 18, 1978
Quick and Secret Construction of Plutonium Reprocessing Plants: A Way to Nuclear Weapons Proliferation? (EMD-78-104)	October 6, 1978
An Evaluation of Federal Support of the Barnwell Reprocessing Plant and the Department of Energy's Spent Fuel Storage Policy (EMD-78-97)	July 20, 1978
Fair Value Enrichment Pricing: Is It Fair? (EMD-78-66)	April 19, 1978
An Evaluation of the Administration's Proposed Nuclear Non-Proliferation Strategy (ID-77-53)	October 4, 1977
Assessment of U.S. and International Controls Over the Peaceful Uses of Nuclear Energy (ID-76-60)	September 14, 1976
Role of the International Atomic Energy Agency in Safeguarding Nuclear Material (ID-75-65)	July 3, 1975

CONSULTANTS CONTRIBUTING TO GAO'S

REVIEWS ON THE NUCLEAR NON-PROLIFERATION ACT OF 1978 1/

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1/Unless otherwise noted, each consultant participated in both the December 1978 and November 1980 meetings and provided written comments on the draft report. (Mr. Cochran provided oral comments.)

2/Did not participate in either meeting. Provided written comments.

3/Participated in one meeting. Provided written comments.

4/Participated in the November 1978 meeting. Was sent a copy of the draft report, but did not comment.

5/Did not participate in either meeting. Were sent a copy of the draft report, but did not comment.

COMPANIES CONTACTED DURING ASSESSMENT OF THE NNPA'S IMPACT ON INDUSTRY

Reactor Suppliers (4):

- Combustion Engineering, Inc.
- General Electric Company
- The Babcox and Wilcox Company
- Westinghouse Electric Corporation

Trade Associations (2):

- American Nuclear Energy Council
- Atomic Industrial Forum, Inc.

Architect - Engineers (8):

- Bechtel Power Corporation
- Brown and Root, Inc.
- Burns and Roe
- Ebasco Services, Inc.
- Gibbs and Hill, Inc.
- Gilbert/Commonwealth International, Inc.
- Stone and Webster Engineering Corporation
- United Engineers and Constructors, Inc.

Components - Fuel Services (12):

- Borg-Warner Corporation
- Carpenter Technology Corporation
- Chase Nuclear Division
- Chicago Bridge and Iron
- Exxon Nuclear Company, Inc.
- Gulf and Western
- Kawecki Berylco Industries, Inc.
- Rockwell International
- Stewart-Warner Corporation
- Teledyne, Inc.
- The Foxboro Company
- Transnuclear, Inc.

IAEA'S FINANCIAL ASSESSMENTS FOR SAFEGUARDS

Member	Required share of safeguards expenses in 1980
Afghanistan	$ 754
Albania	754
Algeria	2,746
Argentina	29,519
Australia	396,509
Austria	163,411
Bangladesh	3,432
Belgium	276,355
Bolivia	754
Brazil	27,460
Bulgaria	5,148
Burma	1,029
Byelorussian Soviet Socialist Republic	105,736
Canada	781,003
Chile	5,148
Colombia	5,835
Costa Rica	754
Cuba	3,775
Cyprus	754
Czechoslovakia	216,278
Democratic Kampuchea	754
Democratic People's Republic of Korea	2,402
Denmark	163,411
Dominican Republic	754
Ecuador	754
Egypt	4,119
El Salvador	754
Ethiopia	754
Finland	112,944
France	1,494,721
Gabon	754
German Democratic Republic	341,238
Germany, Federal Republic of	1,977,743
Ghana	1,373
Greece	11,327
Guatemala	$ 1,029
Haiti	754
Holy See	2,403
Hungary	28,713
Iceland	4,807
India	42,563
Indonesia	6,865
Iran	17,735
Iraq	1,716
Ireland	38,449
Israel	60,076
Italy	867,515
Ivory Coast	754
Jamaica	943
Japan	2,218,052
Jordan	754
Kenya	754
Korea, Republic of	3,775
Kuwait	38,449
Lebanon	1,029
Liberia	754
Libyan Arab Jamahiriya	40,853
Liechtenstein	2,403
Luxembourg	9,612
Madagascar	754
Malaysia	2,402
Mali	754
Mauritius	754
Mexico	30,549
Monaco	2,403
Mongolia	754
Morocco	2,059
Netherlands	365,270
New Zealand	67,287
Nicaragua	754
Niger	754
Nigeria	3,432
Norway	115,348
Pakistan	5,148
Panama	754

Member	Required share of safeguards expenses in 1980
Paraguay	$ 754
Peru	2,402
Philippines	6,522
Poland	110,631
Portugal	5,492
Qatar	4,807
Romania	10,640
Saudi Arabia	2,059
Senegal	754
Sierra Leone	754
Singapore	1,373
South Africa	17,849
Spain	35,011
Sri Lanka	1,029
Sudan	943
Sweden	317,207
Switzerland	247,517
Syrian Arab Republic	754
Thailand	3,775
Tunisia	754
Turkey	10,297
Uganda	754
Ukranian Soviet Socialist Republic	391,704
Union of Soviet Socialist Republics	2,977,428
United Arab Emirates	16,822
United Kingdom of Great Britain and Northern Ireland	1,160,692
United Republic of Cameroon	754
United Republic of Tanzania	754
United States of America	6,007,724
Uruguay	2,059
Venezuela	$ 11,327
Vietnam	2,059
Yugoslavia	12,013
Zaire	943
Zambia	754

SOURCE: IAEA Documents CG (XXIII) 1612/mod.1.

OVERVIEW OF THE APPROVAL PROCESS FOR EXPORT LICENSES, SUBSEQUENT ARRANGEMENTS, AND FOREIGN COMMERCIAL ACTIVITIES OF U.S. FIRMS AND INDIVIDUALS

This appendix provides an overview of the regulatory nonproliferation controls the U.S. Government exercises over exports of nuclear materials, equipment, and technology. It describes the statutory export conditions and the procedures for approving export licenses, subsequent arrangements, and foreign commercial activities of U.S. firms and individuals by the five executive branch agencies involved in routine nuclear export decisions (the Departments of Energy, Commerce, State, and Defense and ACDA), the independent NRC, the President, and the Congress.

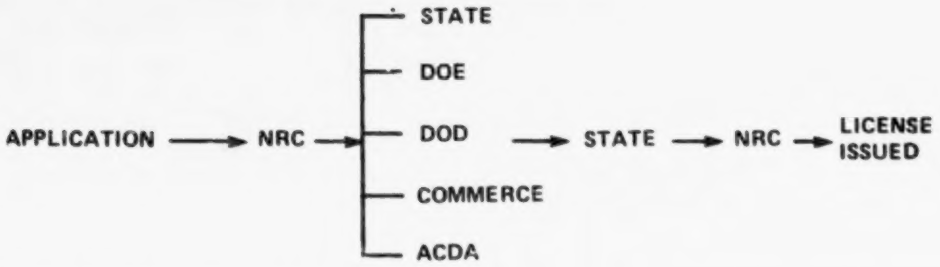
The export licensing process

Under the Atomic Energy Act of 1954, as amended by the NNPA, NRC licenses five categories of nuclear exports: (1) utilization facilities (power and research reactors), (2) special nuclear material (enriched uranium, uranium-233, or plutonium), (3) source material (natural uranium or thorium), (4) radioactive byproduct material (e.g., tritium or cesium), and (5) reactor components and moderator materials (nuclear grade graphite and heavy water).

The NNPA carefully defined the roles of the independent NRC and the executive branch in the nuclear export licensing process. NRC cannot issue an export license until it has been notified by the Department of State that the executive branch believes the proposed export will not be "inimical to the common defense and security" of the United States. This national security finding essentially involves a judgment that the proposed export will be used for its intended peaceful use and will not be diverted. For exports requiring detailed review, an executive branch analysis is assembled and forwarded to NRC by the Department of State, after consulting with the Departments of Energy, Defense, and Commerce, and ACDA.1/ The following flow chart summarizes the process.

1/ACDA believes that the NNPA provides for an executive branch judgment which would require a consensus of the concerned agencies rather than requiring only consultations.

EXPORT LICENSING PROCESS



In addition to the national security finding, the executive branch agencies must address other statutory conditions, and NRC must find that these conditions are met before issuing the export license depending on the type of export. Briefly, these conditions require that the export, and in some cases, special nuclear material used in or produced through the use of such export, be subject to

--the terms and conditions of the U.S. agreement for cooperation with the receiving nation or group of nations,

--application of IAEA safeguards,

--adequate physical security measures,

--prior U.S. approval for any export retransfers to the jurisdiction of any other nation or group of nations than was initially authorized,

--prior U.S. approval for any reprocessing or other physical alteration of the export, and

--prior U.S. approval for any enrichment of the export.

As a further condition, the NNPA prohibits exports of nuclear reactors, special nuclear material, and source material for nuclear end uses to those non-nuclear weapon nations where IAEA safeguards are not maintained on all of their peaceful nuclear activities at the time of export from the United States. Unlike the other statutory export criteria which were effective upon enactment of the NNPA, this "fullscope safeguards" condition only applied to export license applications received by NRC after September 10, 1979, or to export license applications where the first export would occur after March 10, 1980. The NNPA gives the President explicit authority to waive this condition on a case-by-case basis if he notifies NRC that failure to approve a proposed export because this condition is not met would be "seriously prejudicial to the achievement of U.S. nonproliferation objectives" or otherwise "jeopardize the common defense and security" of the United States.

The table on the next page summarizes the applicability of the statutory conditions discussed above to the five basic categories of nuclear exports NRC licenses. Although NRC must find that all these statutory conditions are met before issuing the export license, not all export applications require detailed review. NRC and the executive agencies have agreed on simplified processing procedures for licensing exports depending primarily on their proliferation significance.

Applicability of Statutory Conditions to Nuclear Exports for Peaceful Uses

Condition	Nuclear reactors	Special nuclear material	Source material	Nuclear reactor components and special reactor materials	Byproduct material
National security	X	X	X	X	X
Agreement for cooperation	X	X	(note a)		
IAEA safeguards application	X	X	X	X	
No explosive use	X	X	X	X	
Physical security	X	X	X		
Retransfer	X	X	X	X	
Reprocessing	X	X	X		
Enrichment		X	X		
Full-scope safeguards	X	X	X		

a/In the case of agreements for cooperation entered into by the United States after passage of the NNPA, the export of source material for reactor fueling or for enrichment must be pursuant to such agreement. Source material exports for "non-nuclear use" need satisfy only the criterion that they not be inimical to the common defense and security.

The subsequent arrangement approval process

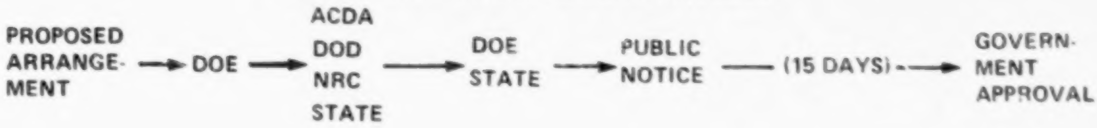
"Subsequent arrangements" is a new statutory term in the NNPA (sec. 303) that refers to regulatory controls administered by DOE over certain cooperative arrangements regarding the supply, use, or retransfer of U.S. nuclear materials and equipment. Although the term was apparently conceived to apply to Government arrangements under agreements for cooperation, the statutory definition includes activities not covered by such agreements, such as Government distributions of nuclear materials.

According to the NNPA, subsequent arrangements are

> "arrangements entered into by any agency or department of the United States Government with respect to cooperation with any nation or groups of nations (but not purely private or domestic arrangements) involving
>
> (A) contracts for the furnishing of nuclear materials and equipment;
>
> (B) approvals for the transfer, for which prior approval is required under an agreement for cooperation, by a recipient of any source or special nuclear material, production or utilization facility, or nuclear technology;
>
> (C) authorization for the distribution of nuclear materials and equipment pursuant to this Act which is not subject to the procedures set forth in section 111b. [distributions of special nuclear material and source material], section 126, or section 109 b. [both sections pertain to exports under NRC licensing jurisdiction];
>
> (D) arrangements for physical security;
>
> (E) arrangements for the storage of irradiated [spent] fuel elements;
>
> (F) arrangements for the application of safeguards to nuclear materials and equipment; or
>
> (G) any other arrangement which the President finds to be important from the standpoint of preventing proliferation. [This authority was delegated by the President to DOE]."

Before the Government can approve any proposed subsequent arrangement, the NNPA requires that DOE make the same national security determination required in granting export licenses; that is, the arrangement must not be "inimical to the common defense and security" of the United States. In making this determination, DOE must obtain the concurrence of the Department of State and consult with ACDA, DOD, and NRC. Government approval of the arrangement does not take effect until 15 days after DOE publishes its findings in the Federal Register. The flow chart below summarizes the process.

SUBSEQUENT ARRANGEMENT PROCESS



The security finding and public notice are the only common statutory conditions governing approval of all types of subsequent arrangements. However, the NNPA places additional conditions on subsequent arrangements involving foreign reprocessing and U.S. storage of foreign spent fuel, which also includes provisions for congressional review.

Before approving foreign reprocessing requests, DOE must determine that the reprocessing, and the plutonium derived from such reprocessing, will not result in a "significant increase in the risk of proliferation." In reaching this decision, DOE must consider whether the reprocessing will take place under conditions that will ensure "timely warning" to the United States of any plutonium diversion to nuclear explosive purposes. In addition, DOE must provide two congressional committees a report stating its reasons for approval. After submission of the report, DOE must wait for 15 days of continuous congressional session before approval can take effect. The Congress has no veto right, however.

In contrast, the NNPA provides the Congress an opportunity to veto proposed subsequent arrangements involving a commitment to store or otherwise dispose of foreign spent nuclear fuel in the United States. Before completing such an arrangement, DOE must provide the Congress 60 days of continuous session for review. During this period the Congress can veto the arrangement by adopting a concurrent resolution opposing the U.S.

commitment. If there is "an emergency situation" requiring immediate action in the national interest, the President may authorize the storage of limited quantities of foreign spent fuel without congressional review. However, he must notify certain committees of the Congress with a detailed explanation and justification as soon as possible. This condition only applies to spent fuel discharged from foreign power reactors and no such commitment has been made since NNPA passage. Fuel discharged from foreign research reactors was excluded from this condition.

Controls over foreign commercial nuclear activities of U.S. firms and individuals

In addition to controlling nuclear material and equipment exports, the Government, primarily through DOE, attempts to control virtually every nuclear fuel cycle-related activity by a U.S. citizen or firm abroad. DOE's authority to control foreign activities of U.S. firms and individuals stems from section 57(b) of the Atomic Energy Act of 1954. Section 57(b) forbids "any person to directly or indirectly engage in the production of any special nuclear material outside the United States" except when authorized. If specific authorization is not contained in a U.S. agreement for cooperation, then only the Secretary of Energy 1/ can grant a specific authorization after finding that the proposed activity "will not be inimical to the interests of the United States."

Section 57(b) has been interpreted by DOE and its precessor agencies to encompass virtually any activity by a U.S. citizen or firm abroad related to the nuclear fuel cycle. This broad interpretation is not just limited to the transfer of nuclear technology in the form of blueprints, instruction manuals, or other technical know-how but to any form of assistance in foreign nuclear programs, including consulting services and, at times, the export of commodities licensed by the Department of Commerce.

The NNPA amended section 57(b) to require that decisions on specific authorizations by the Secretary be made with the concurrence of the Department of State after consultation with ACDA, NRC, and the Departments of Commerce and Defense.

1/Section 161(n) of the Atomic Energy Act prohibits the Secretary from delegating his responsibility for granting specific authorizations.

The NNPA also added "sensitive nuclear technology" as a separate category of information to be controlled.

In practice, the Secretary of Energy does not grant specific authorization for every nuclear fuel cycle-related activity. DOE's implementing regulations for section 57(b), Unclassified Activities in Foreign Atomic Energy Programs (10 C.F.R. 810), provides a general authorization for certain activities and procedures for requesting specific authorizations for other activities.

DOE distinguishes between communist and "free-world" nations in applying its rules. The chart below summarizes the applicability of DOE rules to U.S. activities in foreign nuclear programs.

Type of activity	Communist nations (note a)	Free-world nations
Transferring published technical information available to the public	Generally authorized	Generally authorized
Providing assistance to "non-sensitive" foreign nuclear facilities (e.g., mining and milling of source material, conversion, power and research reactors)	Specific authorization required	Generally authorized
Providing assistance to "sensitive" foreign nuclear facilities (i.e., reprocessing, enrichment, heavy water production, plutonium fuel fabrication)	Specific authorization required	Specific authorization required

a/In this category, DOE's rules include the following 19 nations: Albania, Bulgaria, Cambodia, China (excluding Taiwan), Cuba, Czechoslovakia, East Germany, Estonia, Hungary, Laos, Latvia, Lithuania, North Korea, Outer Mongolia, Poland, Romania, "Southern Rhodesia," the Soviet Union, and Vietnam. All other nations are included in the "free-world" category.

Although neither reflected in DOE's rules nor prohibited by law, it has long been executive branch policy not to allow U.S. firms and individuals to provide significant assistance to foreign activities in the areas of reprocessing, uranium enrichment, and heavy water production because of their significant proliferation risk. This policy was reaffirmed by the President on April 7, 1977, when announcing major changes in U.S. domestic nuclear energy policies and programs. Specifically, the President said that the executive branch "* * * will continue to embargo the export of either equipment or technology that could permit uranium enrichment and chemical reprocessing."

HOW AGENCIES DETERMINE COMPLIANCE WITH STATUTORY EXPORT LICENSING CONDITIONS

This appendix discusses the types of assurances the United States receives for the major export licensing conditions specified in Title III of the NNPA. These conditions include (1) agreements for cooperation, (2) pledges of no explosive use, (3) physical security, (4) U.S. prior consent rights over retransfers, (5) U.S. prior consent rights over reprocessing, (6) de facto full-scope safeguards, (7) sensitive nuclear technology, and (8) U.S. national security. (An additional condition--application of safeguards to U.S. exports--is discussed on pp. 64-67.)

The United States relies on written agreements with trading partners supplemented by independently acquired information to assure that U.S. exports of nuclear materials and equipment do not contribute to proliferation. NRC and executive branch officials generally agree that the assurances being received are reasonable for determining compliance with prescribed statutory conditions.

The NNPA gives the agencies some flexibility in determining compliance with statutory export conditions. The written assurances provided by recipient nations were not expected to be identical to that required by the NNPA. Therefore, the NNPA allows NRC to find that the "equivalent" of a specific export condition is met. Also, the export licensing conditions do not always involve findings of fact, but rather judgments as to whether the proposed export would meet the conditions. Because these are judgments and absolute certainty is not possible, the Act permits NRC to make its final determinations based on a "reasonable" evaluation of the assurances provided and other information available to the United States.

AGREEMENTS FOR COOPERATION

U.S. exports of nuclear reactors and special nuclear material are generally made pursuant to agreements for cooperation. To determine compliance with this condition the executive branch and NRC confirm that the proposed export would take place under the terms of an agreement for cooperation. The United States must receive an assurance letter from all nations or groups of nations certifying that (1) the material covered in the license application is subject to all the terms and conditions of the agreement for cooperation and (2) all intermediate and ultimate consignees are authorized to receive and possess the material.

Another consideration is whether the recipient nation has adhered to all provisions of its agreement for cooperation. According to executive branch officials, no nation has clearly broken or violated an existing agreement with the United States.

NO EXPLOSIVE USE

Before the NNPA, the Atomic Energy Act of 1954, as amended, required that agreements for cooperation contain a guarantee that any material to be transferred "will not be used for atomic weapons, or for research on or development of atomic weapons or for any other military purposes." This language appeared to satisfy the U.S. goal of non-proliferation until 1974, when India exploded a so-called "peaceful nuclear explosive device." In response to India's action, the NNPA established an export licensing condition that precludes any nation from using U.S. material or supplies to construct a nuclear explosive device.

Both executive branch and NRC officials agree that the following assurances satisfy this condition. If a nation is party to the NPT, the condition is met. If a nation has not ratified the NPT, the United States relies on its agreement for cooperation with the nation, or, for nations that have not appropriately amended their agreements, written assurance that the material will not be used for a nuclear explosive device.

Executive branch and NRC officials say that obtaining adequate assurances from most nations has not been a problem. However, a few nations have not provided the full assurances. For example, Argentina refuses to provide written "no explosive use" assurances. Brazil has provided the United States with appropriate verbal, but not written assurances. India provided written assurances, but worded them in such a way that agency officials are uncertain if the assurances will be maintained in the future.

PHYSICAL SECURITY

Since the early part of the 1970s, there has been increasing concern about subnational threats, such as terrorist groups acquiring nuclear materials. To protect against these threats, increasing attention is being given to physical security measures for nuclear materials. This is a rather sensitive international subject since physical security is considered to be a domestic matter.

Previously, U.S. agreements for cooperation have not contained provisions relating to physical security. The NNPA requires this condition in new or amended agreements and NRC has issued regulations with the specific levels of physical protection needed. NRC was required to consult, prior to issuing the regulations, with the executive branch agencies to establish levels of physical security, which would be no less strict than by any international guidelines to which the United States subscribes.

NRC relies on written assurances, exchange visits, and other information to determine compliance. The executive branch and NRC consider the results of these exchanges in judging the adequacy of physical security measures in the recipient nation. These visits are made by a team of physical security experts from NRC and DOE. The team visits facilities that are "representative" of the facilities that will be using U.S. material and equipment. Both NRC and DOE officials consider these visits to be part of an "exchange program" whereby the United States and the recipient nation share physical security technology and information with each other. Both NRC and DOE officials believe that the exchange program has resulted in significant improvements to the physical security systems of many nations.

There are some limitations in determining the adequacy of physical security systems.

--Some physical security information is 5 years old, and NRC and DOE officials cannot determine if the observed levels of physical security have been maintained.

--DOE and NRC do not have information on the levels of physical security for each facility possessing U.S. supplies and materials since visits are made to facilities that are "representative" of the types of facilities that receive U.S. materials.

--Some foreign governments have been reluctant to participate in the exchange program and some NRC officials expect that future visits may be rejected by some governments as no longer necessary.

--Some exports had to be approved, as authorized by the Act, under a technical exemption from this criterion because the United States had initial difficulties with some nations in obtaining written assurances that their physical security systems met or exceeded the applicable IAEA recommendations.

Numerous license applications have been delayed because of problems found with the physical security program of the recipient nation or of a nation considered to be an intermediate consignee. Although the U.S. concerns about the physical security systems in these nations were resolved, 6-month delays occurred in approving a license application.

RETRANSFER

The Act requires that the United States have the right to approve the retransfer of any source material, special nuclear material, production or utilization facility, or sensitive nuclear technology proposed to be exported, and of any special nuclear material produced through the use of any such material. To determine compliance, the executive branch and NRC analyze assurances in the agreement for cooperation with the recipient nation or any additional written or oral assurances that may be necessary. With a few exceptions, all existing agreements for cooperation contain a U.S. consent right or the equivalent. Exceptions at the time of the NNPA's enactment were the agreements with IAEA and Canada. This problem, however, was resolved through amended agreements.

In the case of the EURATOM agreement, the United States does have a consent right to approve retransfers of U.S. material to nations outside the EURATOM community. However, the agreement does not give the United States a consent right for retransfers within the community. Executive branch and NRC officials do not believe this fact causes any problems with EURATOM compliance because U.S. policy is to consider EURATOM as a single entity.

Some agreements for cooperation specifically state that the United States has a consent right on retransfers of special nuclear material produced from U.S.-supplied material. Other agreements state that a nation may retransfer produced special nuclear material to another nation with an appropriate agreement for cooperation with the United States, or when safeguards can be effectively applied. For most agreements for cooperation, the executive branch and NRC have determined that this provision satisfies the criterion because the United States must agree to whether a recipient's agreement with the United States is "appropriate" or whether the safeguards in the recipient nation are acceptable. In new or renegotiated agreements for cooperation the executive branch is seeking to negotiate more explicit retransfer approval rights for produced special nuclear material.

REPROCESSING

The Act explicitly conditions U.S. exports of source or special nuclear material on a U.S approval right over the reprocessing or alteration in form or content of material and of special nuclear material produced through its use. The executive branch and NRC determine compliance for this criterion by analyzing existing agreements for cooperation and considering any additional written or oral assurances provided by the recipient nation. Except for IAEA, Canada, and EURATOM, the United States has had approval rights over the foreign reprocessing of U.S.-supplied nuclear material in existing agreements for cooperation. The existing agreements give the United States the right to participate in a joint determination with the recipient nation prior to reprocessing of any spent fuel derived from U.S. supply. The executive branch and NRC consider this provision to be the equivalent of a consent right over reprocessing.

At the time the Act was passed, the agreements for cooperation with EURATOM, IAEA, and Canada did not give the United States approval rights for reprocessing. In the case of IAEA and Canada this situation has been resolved in the same manner as previously discussed under the retransfer criterion.

The lack of a U.S. approval right in the EURATOM agreement 1/ has been troublesome. The Act exempted EURATOM from U.S. reprocessing approval requirements for 2 years, provided EURATOM agreed to renegotiate its agreements for cooperation within 30 days of the NNPA's enactment. EURATOM did not agree to renegotiate within the 30 days, and on April 9, 1978, NRC ceased issuing export licenses to all EURATOM nations. On July 7, 1978, EURATOM notified the Department of State of its readiness to enter "discussions" on its agreements. On July 20, 1978, NRC lifted the ban on EURATOM licenses. EURATOM has still not renegotiated its agreements, but has been granted two 1-year extensions by the President, exempting it from this criterion until March 10, 1982. If EURATOM does not agree to accept the U.S. reprocessing approval license condition by this date, and the President does not grant another extension, NRC would be required to cease issuing export licenses to all EURATOM nations.

1/The United States has three agreements for cooperation with EURATOM; one is scheduled to expire on December 31, 1985; another on December 31, 1995; and the third has no duration provision.

SENSITIVE NUCLEAR TECHNOLOGY

The Act requires that all the export licensing conditions specified in section 305 be applied to any nuclear material or equipment which is produced or constructed through the use of any exported sensitive nuclear technology. The Act defines sensitive nuclear technology as any information (including information incorporated in equipment) that is not available to the public and is important to the design, construction, fabrication, operation, or maintenance of a facility used for uranium enrichment, nuclear fuel reprocessing, or heavy water production.

This criterion provides controls over exports of nuclear technology adaptable to producing weapons-useable material. DOE currently exercises controls over information transfers, but this criterion strengthens U.S. controls over enrichment, reprocessing, and heavy water production technologies.

Existing agreements for cooperation do not provide specific assurances for sensitive nuclear technology because these technologies were not exported. The Act specifies the need to include such assurances in new agreements.

According to executive branch and NRC officials, no exports of sensitive nuclear technology have been made since the Act was passed. Accordingly, the executive branch and NRC have not determined compliance for this criterion. In addition, DOE has not promulgated new regulatory controls for this criterion.

FULL-SCOPE SAFEGUARDS

The Act requires that, at the time of export, IAEA safeguards be maintained for all peaceful nuclear activities under the jurisdiction of the recipient nation. This criterion is not required for nuclear weapon nations. In addition, this criterion only applies to those exports for which a license application was filed after September 10, 1979, or for which the first export would occur after March 10, 1980. The Act also permits the President to authorize exports without meeting this criterion, subject to congressional review and possible disapproval.

Non-nuclear weapon nations party to the NPT have agreed to full-scope safeguards, which are a legal commitment to accept IAEA safeguards on all source or special fissionable material in all peaceful nuclear activities within their territory, under their jurisdiction, or carried out under their control anywhere. It should be noted that the U.S. de facto full-scope safeguards requirement differs from the NPT requirement which stipulates that IAEA safeguards be applied to all existing and future facilities within the nation. The U.S. requirement only provides for a factual determination at the time of the export that IAEA safeguards are applied on all existing facilities, rather than for a commitment from the recipient nation that such safeguards will be maintained in the future. The U.S. condition, therefore, would permit continued exports to certain non-NPT nations, with which the United States now cooperates, as long as they do not establish unsafeguarded facilities.

Executive branch and NRC officials determine compliance with this criterion in the following manner. If a nation is party to the NPT, the condition is satisfied, provided the United States had no information available that IAEA safeguards were not being applied. If a nation is not party to the NPT, it must have placed all applicable facilities and materials under IAEA safeguards.

The majority of nations that have agreements for cooperation with the United States meet this criterion because they are also parties to the NPT. However, some U.S. partners are not NPT parties and do not have full-scope safeguards. These nations include South Africa and India. According to the executive branch, the United States has informed South Africa that continued cooperation would require acceptance of full-scope safeguards and NPT adherence. No nuclear exports have been made to South Africa since 1975. Exports to India, on the other hand, were continued through 1980.

During 1980, the United States considered two export license applications for fuel to India. Determining compliance with the full-scope safeguards criterion for these applications resulted in the most controversial nuclear export decision made since the NNPA was enacted. Although the first export was not made within the March 10, 1980, deadline, the executive branch maintained that the criterion did not apply. Its rationale was that the applications had been received before September 10, 1979, and, if the applications had been processed within the prescribed time frames, the exports would have been made before the deadline. NRC, on the other hand, stated that the criterion had to be met for any exports occurring after March 10, 1980, regardless of the application date. On June 19, 1980, the President, by executive order, authorized the exports because failure to do so "would be seriously prejudicial to the achievement of

U.S. non-proliferation objectives and would jeopardize the common defense and security of the United States." Under the requirements of the Act, the presidential determination was sent to the Congress for its approval. On September 18, the House of Representatives voted 298 to 98 against making the export. However, the House vote was not upheld in the Senate, which on September 24, voted 48 to 46 to support the presidential authorization. As a result, the exports were approved.

Officials from NRC and the executive branch agree that future Indian exports would be conditional on India's acceptance of full-scope safeguards unless a presidential waiver is granted.

NATIONAL SECURITY

The executive branch and NRC must determine that an export will not be inimical to the common defense and security of the United States. This condition, first required in the Atomic Energy Act of 1954, has been maintained by the NNPA. The condition permits denial of exports even when the other criteria are met. However, a House of Representatives Report 1/ states that, in the absence of unusual circumstances, any proposed export meeting the Title III criteria would also satisfy the common defense and security condition

Since passage of the Act, three export license applications have been denied because of this condition. Two cases involved proposed exports to Iran, the other involved a proposed export of bulk tritium to the Dominican Republic.

This condition is considered a "catch-all" category, and to determine compliance the executive branch and NRC consider many factors. These factors include, but are not limited to, U.S. non-proliferation and foreign policy matters, political climate in the proposed recipient nation, adequacy of safeguards, and the type and form of exported material.

The information and assurances used in this determination originate not only from written agreements and assurances, but also from intelligence data and other information. NRC officials say that they rely primarily on information from the executive branch. The information is contained in the executive branch analysis and is supplemented by appropriate executive branch agencies through separate analyses, information, and briefings concerning nuclear proliferation-related activities

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1/ Report 95-587, House 95th Congress, 1st session, p. 21.

in a recipient nation. Although NRC does not have access to all intelligence data, NRC officials believe they are receiving sufficient summary intelligence data to make an adequate determination for this criterion.

TEXT OF SUGGESTED LEGISLATIVE AMENDMENTS TO THE NUCLEAR NON-PROLIFERATION ACT OF 1978

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, that this Act may be cited as the "Nuclear Non-Proliferation Amendments Act of 1981".

Section 2 - Section 2 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 120, relating to the Act's policy, is amended by deleting the semi-colon at the end of subsection (b) and adding the following,

",including expedited licensing procedures for exports under new or amended agreements for cooperation;"

Section 3 - Section 301 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 125, relating to government-to-government transfers, is amended--

(a) by deleting subsections (a) and (b) and redesignating subsection (c) as subsection (a);

(b) by making the following changes in section 111 of the Atomic Energy Act of 1954, as amended,--

(1) by striking out subsections a and b and inserting in lieu thereof the following,

"Sec. 111.a. The Nuclear Regulatory Commission is authorized to license the distribution of special nuclear material, source material, and byproduct material by the Department of Energy pursuant to sections 54, 64, and 82 of this Act, respectively, in accordance with the same procedures established by law for the export licensing of such material by any person.

"b. The Department of Energy shall not distribute any special nuclear material, source material, or byproduct material under section 54, 64, or 82 of this Act other than under the same procedures established by law for the export licensing of such material by any person."

(2) by adding the following new subsection at the end thereof,

"c. The Department of Energy shall not distribute any items or substances, defined by the Nuclear Regulatory Commission under section 109 of this Act as especially relevant from the standpoint of export control because of their significance for nuclear explosive purposes, other than under the same procedures established by law for the export licensing of such items or substances by any person."

Section 4 - Section 302 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 126, relating to technology transfers, is amended to make the following changes in subsection 57b of the Atomic Energy Act of 1954, as amended--

(a) By redesignating as b(1), subsection b, and as (i) and (ii) respectively subparagraphs (1) and (2);

(b) By inserting in subparagraph (ii) ", published in the Federal Register,", after the words "the Secretary of Energy";

(c) By adding paragraphs (b) (2) and (3), which read as follows,

"(2) Notwithstanding subparagraph (ii) above, no transfer of any significant nuclear technology shall be made to any non-nuclear weapon state which is not in compliance with section 128 of this Act;"

"(3) Notwithstanding the provisions of section 161 (n) of this Act, the Secretary of Energy is authorized to delegate to officers or employees of the Department of Energy the authority to make the determination in subparagraph (ii) above."

Section 5 - Section 304 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 131, relating to export licensing procedures, is amended to make the following changes in section 126 of the Atomic Energy Act of 1954, as amended--

(a) by striking out in subsection (a)(1) the sentence beginning "The Secretary shall notify" and inserting in lieu thereof the following,

"The Secretary shall inform the applicant or requestor in writing of the delay and when it is anticipated the executive branch judgement will be completed and shall provide follow-up reports as appropriate."

(b) by striking out the clauses in subsection (a)(2), beginning with the words "Provided" and "Provided further" and inserting in lieu thereof the following,

"Provided, That continued cooperation under an agreement for cooperation as authorized in accordance with section 124 of this Act, which has been in effect since March 10, 1978, shall not be prevented by failure to meet the provisions of paragraph (4) or (5) of Section 127; Provided further that the exemption pursuant to the above proviso, from the provisions of paragraph (4) or (5) of section 127 of this Act shall be unavailable to any group of nations, if the President informs the Commission that the continued cooperation with such group of nations would be seriously prejudicial to the achievement of United States non-proliferation objectives or would otherwise jeopardize the common defense and security; however, nothing in this subsection shall be deemed to relinquish any rights which the United States may have under agreements for cooperation in force on March 0, 1978 which have not since been renegotiated or revised pursuant to section 404(a) of the Nuclear Non-Proliferation Act of 1978."

(c) by making the following changes in subsection b(2):

(1) by striking out the words ",the Commission shall inform the applicant in writing of the reason for delay and provide follow-up reports as appropriate"; and inserting in lieu thereof the following,

"the Commission shall notify the Committee on Foreign Relations of the Senate and the Committee on Foreign Affairs of the House of Representatives of the reasons for the delay."

(2) By striking the sentence beginning "If the Commission has not completed action" and inserting in lieu thereof the following,

"If the Commission has not completed action by the end of an additional sixty days (a total of one hundred and twenty days from receipt of the executive branch judgment), (a) the President may authorize the proposed export by Executive order upon a finding that further delay would be excessive and upon making the findings required for such Presidential authorizations under this subsection, and subject to the Congressional review procedures set forth herein, and (b) the Commission shall refer the license application to the President for authorization of the proposed export in accordance with paragraph (a), upon written request of the applicant."

Section 6 - Section 307 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 138, relating to the termination of nuclear exports, is amended to make the following change in section 129 of the Atomic Energy Act of 1954, as amended, by adding after the word "to" in the first sentence, the following,

"and general authorizations granted by the Secretary of Energy pursuant to subsection 57b(1) of the Act shall be withdrawn from--"

Section 7 - Section 401 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 142, relating to agreements for cooperation, is amended to make the following change in section 123a of the Atomic Energy Act, as amended, by inserting the following sentence, after the sentence beginning "The President may exempt a proposed agreement,"

"If any such exemption pertains to a requirement which is also an export licensing criterion under section 127 or 128 of this Act, that criterion shall not, to the extent it is inconsistent with the exemption, apply to exports under the proposed agreement upon its entry into force."

Section 8 - Section 404 of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 148, is amended by deleting subsections (b), (c), and (d).

Section 9 - The Nuclear Non-Proliferation Act of 1978, 92 Stat. 120, is amended by deleting Title V thereof, 92 Stat. 148.

Section 10 - Section 601(a) of the Nuclear Non-Proliferation Act of 1978, 92 Stat. 150, relating to presidential reports, is amended to add a new paragraph (6), which shall read as follows,

"(6) a description of the authorizations granted by the Secretary of Energy under subsection 57b(1) of the 1954 Act and of noncompliance by any person with applicable regulations or U.S. policies."

CONSULTANT VIEWS AND OUR ANALYSIS

As a part of our overall effort to ensure a balanced and thorough report, we asked a number of individuals knowledgeable in the non-proliferation area to advise us during various stages of our review. Most recently we asked 17 such individuals to review our draft report; 14 were able to respond. (See app. III.)

It is important to note that these consultants were advisors and that obtaining their views was only one part of our review. Their assistance helped assure that all the relevant issues were identified and considered. Often the consultants supported our findings. A number of their suggestions have been incorporated in this report to clarify or better convey our results. However, as in any complex and controversial issue, different conclusions and corrective actions were frequently presented and defended.

One consultant complained that we may be relying too heavily on the advice of those associated with the nuclear industry and others that share the industry's views on the NNPA. He felt the group's composition was not in keeping with our desire to insure a thorough and objective report. On the other hand, a few consultants, who are associated with the nuclear industry, accused us of not listening to their advice. In some measure, this demonstrates the difficulty in presenting an objective and independent evaluation which would be accepted by all parties on such a controversial and important subject.

We have considered such comments with other information to arrive at our own judgments on these matters. Thus, the views expressed in this report are those of the General Accounting Office and are not necessarily the positions of the consultants.

The purpose of this appendix is to summarize, on an issue-by-issue basis, the thrust of the consultants' major concerns and comments and our analysis of them.

GAO's approach was basically flawed

Several consultants expressed concerns regarding our overall approach in assessing the NNPA. They made the following assertions.

--We had failed to examine (and repudiate) the basic U.S. policies and premises underlying the NNPA or to provide a "philosophical basis" on which the NNPA might be judged. As a result, we had not addressed the NNPA's fundamental flaws.

--Our recommendations were merely "procedural" and "administrative," and we had not recommended major policy reformulations. Furthermore, our recommendations were either not "bold" enough or too severe.

--Our analysis was too narrowly focused and had not addressed the issue of whether the NNPA had actually contributed to the control of proliferation.

--Our report had overly emphasized the links between weapon proliferation and peaceful nuclear energy use and had not considered all the facets of the proliferation problem.

GAO analysis

The scope, methodology, and objectives for this review are discussed extensively in chapter 1. We believe that the most appropriate approach was employed to fulfill our specific legislative mandate, including the use of consultants with diverse opinions and backgrounds. Section 602 (e) of the NNPA instructed GAO to report to the Congress on the implementation and impact of this Act on the nuclear non-proliferation policies, purposes, and objectives of the Act. Accordingly, we looked at the facts of the NNPA's implementation and judged its impact on its own terms and merits. As analysts, we did not adopt a particular philosophy about the Act; instead, we took a "reasonable man" approach and attempted to examine it on the basis of the facts, without bias towards any underlying "philosophy" or premise. We did not attempt to develop alternate non-proliferation strategies because such a task was much broader than that outlined in our mandate and our role as analysts.

We believe the framework for curbing the inherent risks of weapon proliferation associated with peaceful nuclear cooperation should be retained. We feel our recommendations are sound and justified by our study. Clearly, some of our recommendations are not as bold as those some of our consultants would have proposed. We chose to recommend changes to this complex and important piece of legislation only when our analysis indicated that changes were necessary to improve the Act's implementation and subsequently enhance its impact.

We disagree with the contention that we did not address the impact of the Act. Along with our title-by-title evaluations and an overall assessment of the entire NNPA, we included separate chapters dealing with the Act's impact on the industry and the factors affecting the generally negative foreign reaction.

There is an important link between nuclear energy and the nuclear explosive capability. We recognize that there are other ways to acquire nuclear weapons, but this does not lessen the need to reduce the risks of weapon proliferation emanating from a nuclear energy program. We believe the U.S. policies, goals, and objectives set forth in the Act are important and should be retained.

NRC should be removed from the export licensing process

Most consultants argued that NRC should not be involved in nuclear export licensing and that these licensing functions should be transferred to an appropriate executive branch agency. They argued that NRC's current involvement (1) interferes in the executive branch's formulation and implementation of foreign policy, (2) detracts from its safety mission, (3) lengthens the licensing time frame and contributes to foreign perceptions that the United States is an unreliable supplier, and (4) is an inappropriate congressional oversight aid. Furthermore, some consultants expressed concern over (1) continual and unpredictable changes in NRC's composition not lending NRC to the long-term nature of U.S. foreign agreements and fuel contracts, and (2) NRC lacking the nuclear weapons expertise needed to make judgments regarding U.S. "common defense and security."

GAO analysis

We weighed the consultants' concerns against the advantages of retaining NRC's export licensing role, and concluded that the consultants' arguments do not justify changing the current nuclear export licensing system, particularly because we found it to be working reasonably well. The following is our response to their principal arguments or concerns.

1. Foreign policy

We recognize that NRC's involvement in the nuclear export licensing process may, in some instances, complicate the executive branch's formulation and implementation of foreign policy. However, NRC's involvement is primarily directed towards making sure proposed exports meet the statutory licensing conditions. Furthermore, if the President determines that NRC's decision to withhold an export "would be seriously prejudicial to the achievement of United States non-proliferation objectives, or would otherwise jeopardize the common defense and security," he has the authority to override the NRC decision. Unless the Congress overrides the President's authorization, the export stands. The NNPA also enables the President to withdraw export licenses from NRC consideration if it has not decided on a pending application within 120 days after receiving an executive branch approval. Although there are several constraints on the President's use of this power, it provides a means for the executive branch to resolve cases where NRC delays could seriously hinder the conduct of U.S. foreign policy.

In addition to these existing statutory methods of guaranteeing the executive branch's predominate role in the foreign policy area, we have proposed a procedure requiring written notification to the Congress when NRC review time limits are exceeded. If adopted, the Congress should be in a better position to objectively assess the extent that NRC's role in the licensing process may be hindering the conduct of U.S. foreign policy.

2. Safety

The argument that NRC involvement in the nuclear export licensing process detracts from its domestic nuclear power safety responsibilities is difficult to emphatically refute or support. The present Commissioners appear equally divided on the issue and neither of the two reports often referenced as support for removing NRC from export licensing included an analysis that demonstrates NRC would, as a result, be in a better position to assure the safety of nuclear power in the United States.

Our review revealed that the vast majority of nuclear export licenses are reviewed and approved by NRC's Office of the Assistant Director for Export/Import and International Safeguards, a small office (currently 15 people) which has no responsibilities for nuclear power safety issues, and, therefore, does not detract from NRC staff consideration of safety issues. Also, we found that, as implementation of the NNPA has become more routine, the Commissioners have delegated more authority to the Office of the Assistant Director for Export/Import and International Safeguards, thus greatly reducing the number of cases requiring the Commissioners' personal review. The safety argument should, in the future, carry less force as precedents are established, and other actions, such as the program to reduce enrichment levels of research fuel exports, materialize; thus, limiting the number of cases requiring the Commissioners' review.

3. Licensing time/foreign perceptions

Some consultants cite licensing time frames as one of the factors leading to foreign perceptions that the United States is viewed as an unreliable supplier. Some advised us that the single most visible action the United States could take to remove the uncertainty would be to remove NRC from the export licensing process because it is viewed as the unpredictable step in this process.

Our analysis shows that, due to many actions taken since the NNPA's enactment to streamline the process, export licensing time frames are improving. However, more can and should be done. Given those actions already taken, proposals under consideration by NRC, and our proposals for further improvements, we believe this concern will be lessened in the future.

Because NRC is normally the last step in the export licensing process and often is pressured by the applicant to act quickly, NRC, in our opinion, receives an inordinate amount of attention. If NRC were removed from the process, this visibility most likely would shift to the agency making the final decision. As noted in our report, the vast majority of licensing delays occurs while the license application is under review by executive branch agencies, not in NRC.

4. Oversight

Contrary to some consultants, we believe NRC's involvement in the licensing process is an important congressional oversight aid. In our opinion, the independent NRC, in contrast to the executive branch, is less likely to be influenced by the short-range political implications of particular export decisions. Some of the consultants believe the Congress should be the only institution to "check" executive branch decisions. We recognize that there may be suitable organizational alternatives to NRC involvement, should the Congress decide this would be beneficial. Accordingly, we have revised our report to note alternative Government organizational arrangements.

5. Changes in NRC

We disagree with the view that continual and unpredictable changes in the composition of the NRC conflict with the long-term nature of U.S. foreign agreements and fuel contracts. In fact, we believe retaining NRC and its current system offers continuity and independence from the policies and actions of changing administrations. The staggered five-year terms of the NRC Commissioners help to ensure that nuclear export procedures evolve, rather than undergo abrupt shifts under new administrations. Furthermore, as stated earlier, NRC does not create policy, but rather checks adherence to existing statutory requirements created by the Congress.

6. Nuclear weapons expertise

A few consultants argued that NRC cannot make informed judgments regarding U.S. "common defense and security" because it lacks competence in the area of nuclear weapons. We disagree because neither NRC's review of the export license nor its ultimate decision requires an expert knowledge of nuclear weapons. We found no evidence to indicate that NRC has been unable to analyze information needed to execute its statutory responsibilities due to a lack of "competence."

Negative impact on industry not adequately reflected

Many consultants criticized our analysis of the NNPA's impact on nuclear export sales. Some consultants, while not objecting to the substance of the chapter, felt that the chapter title did not accurately reflect our findings. A number of others, however, objected to our analysis and asserted that specific sales were lost because of the NNPA. A few of these consultants felt that quantification of the impact was irrelevant because the NNPA had seriously affected the U.S. ability to compete internationally. They felt we should have focused on the overall non-proliferation policy rather than just the NNPA. Others stated we failed to recognize the importance of U.S. nuclear trade in achieving nonproliferation aims.

GAO analysis

We agree that the title could have more accurately reflected the chapter's message and, accordingly, we changed it. The most serious objection in this area by the consultants was that we had not adequately considered a number of sales "lost" due to the NNPA. During our review, we examined each case using a variety of sources for information and, as discussed in chapter 9, determined that we could not say--for certain--that they were lost solely as a result of the NNPA.

We stand by our analysis and conclusions that (1) U.S. companies are at some disadvantage because importers perceive that implementation of certain aspects of the NNPA may adversely affect them, and (2) because of the variety of factors involved, we cannot quantify the extent to which the NNPA may have dissuaded a foreign customer from purchasing nuclear products from U.S. firms.

Some of our consultants attempted to discredit the NNPA by attributing the recent decline in U.S. nuclear exports solely to the NNPA. We disagree and review below the specific cases that some consultants allege were sales "lost" because of the NNPA:

--Reactor sales to Iran--Iran ordered six reactors from Germany and France during 1975-1977; however, the NNPA was not enacted until March 1978.

--Reactor sales to Korea--In November 1980, South Korea contracted with the French for two power reactors. However, Westinghouse representatives and State Department officials indicated that the NNPA was certainly not the single deciding issue. Apparently, the decision was basically fulfilling commitments made in the mid-1970s.

--Argentine reactor vessel order--Some consultants cite the Argentine purchase of a German reactor vessel and component parts as a prime example of a lost U.S. sale as a result of the NNPA. This argument fails to recognize that the reactor order also went to Germany and, as industry representatives have informed us, the export market for components and other nuclear materials is normally tied to the reactor export. The reactor sale itself, apparently, should not be attributed to the NNPA for these reasons: (1) it is a heavy water reactor which U.S. firms do not produce, (2) Germany had previously sold Argentina two similar reactors, and (3) Argentina, with its abundant, indigenous supply of uranium, has focused its program on the heavy water natural-uranium-fueled reactor.

--DOE loss of enrichment contracts--Some of our consultants claimed that we inadequately considered the loss of enrichment services and their relationship to the NNPA. One consultant went so far as to say that "loss" may have been one of the most "telling cases" as to the effect of the NNPA on competitiveness of U.S. exports.

It must be pointed out that the U.S. Government, not industry, provides all U.S. enrichment services for foreign contracts, and is currently expanding its enrichment capacity. Furthermore, the NNPA is only one of several factors that may affect the sale of U.S. enrichment services abroad. In the early 1970s many nations became concerned about relying on a single source for their enrichment requirements. They began to develop their own enrichment capability or to diversify sources of enrichment services. During this period, the United States took a number of actions which brought U.S. reliability as a supplier of enrichment services into question. Such actions included: (1) switching to a less attractive enrichment contract, (2) closing the order books for 4 years, (3) delaying export license approvals, (4) urging others to defer major commitments to early plutonium usage, and (5) tightening export controls. All of these factors, the majority of which took place prior to passage of the NNPA, plus the greater availability of enrichment services from other sources, must also be considered as important factors influencing foreign enrichment decisions.

--Potential sales to the United Kingdom and Mexico--We did not discuss the "loss" possibility of the potential reactor purchases by the United Kingdom and Mexico for the simple reason that they are only that--potential sales. It would be only speculation to blame the NNPA for their "loss" when even industry officials agree it is too early to know when or if the sales will occur.

The NNPA requires us to "complete a study * * * on the implementation and impact of this act," (emphasis added), not the overall U.S. strategy. Additionally, the legislative history indicated a concern that the NNPA might adversely affect U.S. companies competing in the international nuclear market. Thus, the Congress indicated that it wanted us to focus on the effects of the NNPA, to determine if this new law would have a distinguishable adverse effect on U.S. companies. Many of our consultants, on the other hand, did not differentiate between the NNPA and executive branch policies. As noted in chapter 9, many foreign nations also do not differentiate between the policies and the law.

We believe it would be irresponsible for us to assert that the U.S. ability to compete has been seriously affected by the NNPA without being able to document--with names, numbers, and other substantiated facts--what sales have been "lost". Although we do note that U.S. companies are at some disadvantage because of importers' perceptions about the NNPA, we can neither definitively assess the extent of this disadvantage or predict any degree of future impact without documentation of actual lost sales.

Some consultants believe that we neglected the importance of nuclear trade in enhancing U.S. influence in nuclear developments abroad. We agree that U.S. involvement in international nuclear cooperation can play an important role in achieving non-proliferation objectives; however, such involvement cannot insure that the United States will have sufficient leverage to prevent the spread of nuclear explosive capabilities. For example, U.S.-Indian nuclear cooperation did not provide the United States with the influence necessary to persuade India to sign the NPT, accept de facto full-scope safeguards, or refrain from detonating a nuclear explosive device derived, in part, from peaceful nuclear materials. Furthermore, prior to the NNPA's enactment, the United States had already lost much of its dominance in the nuclear export market. Although peaceful nuclear cooperation can be useful in the effort to limit weapons proliferation, expanded peaceful nuclear exports cannot be considered the panacea for proliferation problems.

A great deal of effort was expended to obtain relevant data on nuclear sales abroad. In addition to working with the Departments of State, Energy, and Commerce, the Export-Import Bank, and some foreign utilities, we visited 24 U.S. companies and 2 nuclear trade associations. (See app. IV.) We believe our analysis withstands the assertions of its critics.

NNPA treats all nations the same

Several consultants criticized our draft report for not recommending changes to overcome a major shortcoming, in their opinion, of the NNPA; namely, failure to differentiate between those nations that pose proliferation risks and those that do not. They said that nations whose nuclear programs do not present risks should not be penalized by a "lowest-common-denominator" approach--pursued in the name of non-discrimination. As a result, they alleged that the NNPA has caused strains in U.S. relations with allies and other major trading partners.

GAO analysis

We agree that the NNPA is non-discriminatory. It was carefully and intentionally written to ameliorate potential concerns of consuming and/or third world nations. As a result, nuclear exports to our closest allies may be subjected to the same scrutiny and review (and possible delay) as exports to would-be proliferators. Our report recognizes that the NNPA has contributed to strained U.S. relations with some allies.

Further, our report contains many recommendations aimed at achieving a more focused nuclear export control system. We concluded that the non-proliferation credentials of a recipient nation and the potential weapon sensitivity of an export should dictate whether a license application is reviewed on a streamlined "fast track" basis. Our recommendations, which also include extending indefinitely the EURATOM exemption from certain export licensing criteria and allowing general recipient assurances for U.S. approval of repetitive exports, should increase executive branch flexibility to facilitate nuclear trade with our allies and major trading partners and, thus, help center U.S. non-proliferation efforts on nations posing greater risks.

Export controls should be applied prospectively rather than retroactively

Several consultants objected to what they viewed as the unilateral and retroactive application of some NNPA provisions. Generally cited were Title III provisions that require applying new export license criteria to existing agreements for cooperation and supply arrangements and applying new standards for the exercise of U.S. reprocessing approval rights. Some advocated removing all the NNPA provisions that seek to change existing U.S. commitments. Others suggested that the NNPA should be changed so that new requirements would be applied prospectively and that any changes to existing commitments should occur only after consultation and mutual agreement.

GAO analysis

We believe the "unilateral and retroactive" criticism is exaggerated. It fails to recognize that, with the exception of the full-scope safeguards condition, the export licensing criteria of Title III does not significantly depart from past U.S. nuclear export policy and does not go significantly beyond the requirements of other nations. Although the specific language may differ, IAEA safeguards on exports, no explosive use assurances, adequate physical security, and retransfer controls were all conditions of U.S. nuclear exports before the NNPA and generally have received wide spread international acceptance. Provisions providing U.S. approval rights over the reprocessing of supplied material were contained in all U.S. agreements for cooperation, except those with EURATOM, IAEA, and Canada.

The full-scope safeguards condition does go significantly beyond previous U.S. policy. But, it has considerable merit and its retroactive application only affects a few nations, most notably India and South Africa, with whom the United States has existing agreements for cooperation. Neither nation has thus far placed all its nuclear activities under international safeguards. Because 112 non-weapon nations have accepted NPT-type full-scope safeguards (which are more stringent than those required by the NNPA), India's 1974 "peaceful" nuclear explosion, and concerns about South Africa's past efforts to develop nuclear explosive capability, we believe the retroactive application of this condition is not unreasonable.

During our review we carefully considered whether export controls should be applied only prospectively. We rejected broad proposals to do so because, in our opinion, such action would be a retrenchment in U.S. resolve to upgrade nonproliferation assurances over commercial nuclear trade and facilities. We believe, for example, the credibility of U.S. nonproliferation efforts could be seriously damaged if the United States were to require that only new supply agreements with India and South Africa involve application of full-scope safeguards.

Furthermore, many existing supply arrangements, particularly contracts for supplying long-term enrichment services for foreign power reactors, are for up to 30 years. Many existing agreements for cooperation do not expire for a number of years. For example, the current U.S. agreements with India and South Africa will not terminate until 1993 and 2007, respectively. Thus, if the United States were to apply the export criteria only in a prospective manner, it is possible that the improvements currently being sought, particularly full-scope safeguards might not be forthcoming in some cases for a quarter of a century.

Therefore, despite arguments concerning the alleged impropriety of applying new criteria to existing supply arrangements, we do not believe that the export criteria should be revised to apply only prospectively. Our review has indicated that the present application of the export criteria is important and should be retained.

We recognize, however, that the EURATOM case warrants special attention. Application of U.S. approval rights over reprocessing apparently remains a key point dividing the United States from its allies in EURATOM. To help diffuse the issue, we ask the Congress to eliminate the need for annual presidential extensions of the exemption provided to EURATOM from this export licensing criteria.

Moreover, we ask the Congress to eliminate the NNPA requirement for an annual presidential review of the requirements for new agreements for cooperation and of the proposed common export policies to determine whether any should be applied as export licensing criteria. This review does not add to the President's powers and may contribute to foreign concerns that the United States may apply more stringent criteria to existing commitments at any time.

Concerning the new statutory standards to be applied if the U.S. exercises its reprocessing approval rights, we note that, under these standards, the United States has approved 22 foreign requests to retransfer to and reprocess in the United Kingdom or France, 2,279 spent fuel assemblies as of February 3, 1981.

Although the U.S. approvals were not granted without some difficulties, we believe the record demonstrates that the application of the statutory standards has not been unduly stringent.

U.S. reprocessing and plutonium use approvals should be granted on a long-term, generic basis rather than case-by-case

Several consultants took issue with what they viewed as our support for Government case-by-case reviews of subsequent arrangements involving foreign reprocessing and plutonium use. In their view, nations are unlikely to acquiesce to long-term control over their nuclear fuel cycles, based on case-by-case approvals, because of energy security considerations, or concerns over dilution of national sovereignty. It was also noted that foreign displeasure with case-by-case approval affects not only the administration of existing agreements for cooperation, but the negotiation of new or revised ones, and the U.S. ability to participate in nuclear export sales. They believe the issue cannot be resolved by "partial relief," such as not insisting on the demonstration of physical need before U.S. approvals are granted, as we propose. Instead, the consultants advocate U.S. approvals be granted on a long-term, generic basis--immediately. Also, some advocated that the United States adopt policies similar to the recently announced Australian policy.

GAO analysis

Our report recognizes that a long-term policy is needed for carrying out U.S. approval rights over foreign reprocessing and plutonium use. We also recognize that our recommendation to drop the executive branch's "physical need" policy would only be "partial relief." We have revised our report to make it clearer that our recommendation should be viewed as an interim measure.

To what extent a long-term policy should include generic U.S. approvals is clearly a major policy issue. Both DOE and the State Department have advised us that this matter is being given priority attention within the executive branch in formulating post-INFCE policies. Because the executive branch is actively reviewing the matter, we believe it would be inappropriate for us to advocate the adoption of a specific long-term policy. Nevertheless, it is clear that, if widespread international acceptance is to be acquired, the "physical need" standard should be dropped.

Centrifuge facility is now needed

Most consultants believe that the $6.4 billion centrifuge enrichment facility should be constructed as scheduled. Some believe that the centrifuge facility is needed either for non-proliferation reasons, or for the United States to be competitive with other enrichers. Still others criticize our analysis, indicating that we erred by considering the current enrichment technology adequate.

GAO analysis

We believe it has not been demonstrated that the addition of new centrifuge capacity will have a non-proliferation benefit. While we acknowledged, in our November 1980 report to the Congress, that non-proliferation benefits could possibly serve as a justification for centrifuge construction, we indicated then, and reaffirm in this report, that convincing support for this position has not been presented. Furthermore, because of the diversity and worldwide over-capacity of enrichment services, we do not believe additional U.S. enrichment capacity, by itself, will provide the United States with the type of international non-proliferation leverage it once had.

In the area of competitiveness, we disagree with the consultants' position that the United States should proceed with centrifuge construction because the current gaseous diffusion technology is obsolete making U.S. enrichment services noncompetitive. Historically, U.S. enrichment services have been the least costly, with the exception of those of the Soviet Union which seems to slightly under-price the United States. With regard to the consultants' claim that diffusion technology is obsolete, we note that DOE, as a matter of policy, is currently nearing completion of a $1.5 billion program specifically designed to expand diffusion capacity by incorporating the latest advances in diffusion technology as well as modifying current equipment.

The consultants wrongly characterize our position regarding the current adequacy of enrichment capacity. Although we found that the demand projections made at the time the Congress authorized additional enrichment capacity in 1975 had not materialized, this is only one factor which led us to question the current centrifuge construction schedule. This and our earlier report address (1) DOE's operation of existing facilities at much less than full capacity, (2) the poor prospect for gaining new enrichment customers, (3) foreigners' greater concern with U.S. export policies than with enrichment capacity, (4) the worldwide excess of enrichment capacity, and (5) the possibility of Advanced Isotope

Separation (AIS)--new enrichment technologies--becoming available in the 1990s.

In addition, this report also raises the issue of whether or not it makes good economic sense to proceed with such a costly ($6.4 billion) project in this period of intense budget scrutiny and fiscal restraint. We believe, in light of the above, it is particularly important to fully and objectively consider options to allow the current centrifuge construction program to be postponed until more is known about the commercial potential of AIS technologies.

U.S. offer to accept limited quantities of spent fuel is not warranted

Some of our consultants were critical of the U.S. offer to accept limited quantities of foreign spent fuel. They indicated that the U.S. offer was unwarranted because nations that pose the greatest proliferation risks would not transfer their spent fuel to the United States. One consultant also pointed out that the United States does not offer spent fuel storage services to domestic utilities.

GAO analysis

We state that implementing the U.S. offer to accept foreign spent fuel is not the magic solution to the world's proliferation problems. However, until international solutions to spent fuel management problems are developed, accepting limited quantities of foreign spent fuel may help contain proliferation risks. Although our consultants may be correct in assuming that those nations presenting the greatest proliferation risks will not entrust their spent fuel to the United States, there may be non-proliferation benefits to accepting spent fuel from certain nations. Recent events have demonstrated that potential nuclear weapon nations not now considered to present an imminent proliferation risk may very well present strong proliferation risks in the future. Thus, if judiciously done on a case-by-case basis, carrying out the offcer could further U.S. non-proliferation objectives.

We have revised the text of our report and our recommendation to emphasize the lack of an established domestic spent fuel management program in the United States, the equity issue that this raises, and the need to reassess the offer.

Domestic policies on reprocessing and breeder reactor development have been counterproductive

A general theme of many consultants' comments was that the United States has lost its influence in international nuclear matters because of the Carter Administration's domestic policies deferring commercial reprocessing and breeder reactor development. Generally these policies were considered anti-plutonium and were criticized as being counterproductive to U.S. non-proliferation objectives. Some viewed the NNPA as embracing the philosophy of these policies and, thus, the anti-plutonium stance of the Carter Administration. Further, some saw our proposal for NRC to resume its decisionmaking proceeding on commercial reprocessing as an insufficient or inappropriate forum to reconsider the Carter Administration's domestic policies on reprocessing and breeder reactor development.

GAO analysis

President Carter linked U.S. domestic policies on reprocessing and breeder reactor development to non-proliferation policies in an effort to lend credence to such policies and to reinforce the U.S. commitment to non-proliferation. However, other nations have done little to follow the U.S. lead and, as a result, the U.S. position on reprocessing and breeder reactors may have even diminished the ability of the United States to influence the future worldwide development and use of these proliferation sensitive technologies. We believe, therefore, that while a degree of consistency between U.S. domestic policies and international nuclear policies is needed, the strong and direct linkage of non-proliferation objectives to domestic nuclear energy programs needs to be reassessed by the new administration and the new Congress in light of INFCE conclusions and the lack of converts to the U.S. position.

In this connection, one immediate issue is whether NRC should reopen decisionmaking proceedings on the implications of commercial reprocessing and plutonium recycle in the United States. These proceedings--referred to as GESMO (Generic Environmental Statement on Mixed Oxide Fuel)--were terminated by NRC on December 23, 1977. The past administration's view that termination of the proceedings would be "helpful" to U.S. non-proliferation efforts was an important element in their termination. Thus, the present administration's view will be an important element in whether the proceedings will be reopened. NRC must complete these proceedings and find from an environmental, health, safety, and safeguards standpoint that, on a widespread basis, commercial reprocessing and use of plutonium-bearing fuels present acceptable risks before it can grant operating licenses for specific commercial facilities.

We revised the text of this report to make our position on this matter clearer.

Delete the provisions requiring the renegotiation of agreements

A few consultants questioned aspects of our analysis regarding the renegotiation of agreements for cooperation. Their comments included assertions that Title IV should be changed because the end-product of the currently mandated renegotiation effort is dictated by the NNPA and not by mutual interests, making a prudent negotiation effort impossible. In regard to EURATOM, they stated that (1) renegotiation of the EURATOM agreements should not be a prerequisite for continued cooperation, (2) eliminating the need for an annual extension of the EURATOM exemption (although a welcome step) is not sufficient to remedy the basic U.S.-EURATOM problem, and (3) GAO's analysis is insensitive to EURATOM's importance. Finally, one suggested that the renegotiation effort is not likely to be very fruitful in the future.

GAO analysis

We agree that the United States, in seeking to renegotiate agreements, should be sensitive to the needs and attitudes of its cooperating partners. However, in our opinion, changes in Title IV are not needed to enable the United States to pursue such a policy. Title IV does not require renegotiation for continued cooperation (except for EURATOM, discussed below) and there is no deadline or timetable for the renegotiation effort. Also, there are no penalties in Title IV to be imposed on nations unwilling to renegotiate and the authority to continue cooperation under an existing agreement is not affected by the new criteria. Finally, the President is given the power to exempt a proposed agreement from any of the criteria. Thus, Title IV does not "dictate" an inflexible list of U.S. demands that cooperating partners must agree to or face termination of cooperation.

Moreover, according to executive branch officials, the majority of U.S. partners with unrevised agreements already have met and exceed the one major new NNPA requirement for agreements--*de facto* full-scope safeguards--and have already given the United States prior consent rights over the retransfe and/or reprocessing of U.S.-supplied material. The officials also indicated that two other provisions that would be included in the renegotiated agreements--physical security guarantees and controls over sensitive nuclear technology--are already applicable, to some degree, to all U.S. nuclear cooperation.

Thus, it appears likely that it is not the Title IV criteria, per se, that pose major problems in renegotiating agreements, but rather foreign concerns regarding the manner in which the United States might use prior consent rights over reprocessing. These concerns are noted throughout the report and the need for new U.S. policies governing the exercise of these rights is addressed in chapter 5.

We agree that renegotiation with our European allies should not be a requirement for continued nuclear cooperation, and our recommendation that the Congress eliminate the need for an annual extension of the EURATOM exemption from certain export licensing criteria will help insure this. Granting an indefinite exemption from such criteria would allow the United States to honor its commitments to EURATOM and would reflect EURATOM's importance and status.

This recommendation demonstrates that we are not "insensitive" to EURATOM's position in the world. Moreover, our report recognizes that the United States-EURATOM talks may be closely watched by other U.S. partners.

Admittedly, our recommendations will not resolve what appears to be a fundamental issue in these talks--prior approval rights over reprocessing and the role of plutonium in peaceful nuclear power programs. However, we believe that (1) removing the need for an annual extension of the EURATOM exemption, (2) streamlining U.S. nuclear export procedures to focus on a trading partner's non-proliferation credentials, and (3) establishing new U.S. policies regarding the exercise of U.S. consent rights would be helpful steps that could facilitate the resolution of the discussions.

We agree that the prospects for renegotiating more agreements in the near future without some change in the U.S. approach appear limited. We note that only a few renegotiated agreements are likely to be sent to the Congress in upcoming months.

Timely warning standard should be eliminated

A few consultants indicated that the United States should consider a more realistic and useful standard other than timely warning for evaluating subsequent arrangements that involve reprocessing or the retransfer of plutonium. They suggested replacing the timely warning standard with a more workable standard that emphasizes the application of appropriate international safeguards.

GAO analysis

We do not believe any change is necessary. The law indicates that timely warning to the United States--before a nation has time to make a nuclear explosive device from diverted material--is given the foremost consideration for reprocessing or retransfer requests. The objective of international safeguards, as defined in IAEA's safeguard agreements with NPT parties, is to provide

> "* * * timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or other nuclear explosive devices or for purposes unknown, and deterrence of such diversion by the risk of early detection." (emphasis added)

Therefore, it would seem that the timely warning standard is, in essence, the same as the objective of international safeguards. We believe the United States and other nations should not abandon the timely warning standard, but rather give priority attention to developing methods and techniques to assure the timely detection of diversions from civilian nuclear facilities.

INFCE concluded that development and improvement of existing methods and techniques were foreseen as necessary to meet safeguards objectives at industrial-scale reprocessing facilities. Elimination of the U.S. timely warning standard could dampen efforts to carry out this INFCE consensus. Moreover, it could inadvertently signal to the world that the United States no longer has confidence in IAEA's ability to provide timely detection.

We discuss IAEA's ability to meet the timely detection standard in other reports--"Nuclear Fuel Reprocessing and the Problems of Safeguarding Against the Spread of Nuclear Weapons" (EMD-80-38, March 18, 1980) and "International Nuclear Safeguards Need Further Improvement" (C-ID-81-4, CONFIDENTIAL, February 13, 1981).

Changing U.S. non-proliferation policy would not "confuse" foreign nations

A few of our consultants objected to our suggestion that changes to the NNPA could "confuse" other nations about the U.S. resolve on non-proliferation issues.

GAO analysis

We deleted the word "confuse" in several statements and replaced it with more appropriate language to better convey our meaning. However, we continue to believe that unwarranted, massive changes of NNPA provisions could reinforce foreign perceptions that U.S. non-proliferation policy is subject to unpredictable and unnecessary shifts, and might send incorrect signals abroad that U.S. non-proliferation resolve is weakening.

* * * * *

Copies of the consultants' written comments may be requested from:

U.S. General Accounting Office
International Division
441 G Street, N.W.
Washington, D.C. 20548

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D.C. 20523

THE INSPECTOR GENERAL

MAR 16 1981

Mr. J. K. Fasick, Director
International Division
United States General Accounting
Office
441 G Street, N.W.
Washington, D.C. 20548

Dear Mr. Fasick:

Thank you for the opportunity of providing comments on the draft report of the General Accounting Office titled "Assessment of the Implementation and Impact of the Nuclear Non-Proliferation Act of 1978." At their request members of your staff have previously been provided with the substance of these comments. We hope the attached comments will be helpful in preparing your final report. If you or members of your staff should have any questions or wish to discuss any of the matters covered in our response, please let me know.

Sincerely yours,

H L Beckington

Herbert L. Beckington

GAO note: Mr. Beckington is the Inspector General at the Agency for International Development

Agency for International Development Comments on the GAO Draft Report

Assessment of the Implementation and Impact of the Nuclear

Non-Proliferation Act of 1978 dated February 5, 1981

The Agency for International Development (A.I.D.) has reviewed the draft report, Assessment of the Implementation and Impact of the Nuclear Non-Proliferation Act of 1978. In its review A.I.D. has concentrated its attention on Chapter 7 in which Title V of the Act is analyzed.

We concur with the recommendation of the General Accounting Office that Title V be deleted from the Nuclear Non-Proliferation Act for the reasons set forth in the report. We agree that the Title, although well intended, is superfluous in light of other legislation authorizing the development of non-nuclear energy alternatives for developing countries.

In particular, we note that the A.I.D. legislation is sufficiently broad to authorize activities in support of the goals of Title V. Nevertheless, alternatives to nuclear power systems, such as coal-fired central generation or large hydroelectric facilities, would not ordinarily be financed out of the development assistance funds of A.I.D. due to the high capital costs of such systems.

The report recommends that the feasibility study of a scientific peace corps be completed as called for in Title V. While we recognize that this specific requirement of Title V has not been met, we nevertheless would expect that, in view of the call to delete the Title, the efforts necessary to complete and deliver the report to Congress would be minimal. We understand from members of the GAO staff that the draft report which was prepared on this subject could be completed with little additional effort.

GAO note: Chapter reference to the draft report has been changed.

UNITED STATES ARMS CONTROL AND DISARMAMENT AGENCY
Washington, D.C. 20451

OFFICE OF
THE DIRECTOR

February 20, 1981

Dear Mr. Fasick:

I write in response to your request of February 5, 1981 for agency comments on the draft GAO report entitled, "Assessment of the Implementation and Impact of the Nuclear Non-Proliferation Act of 1978."

ACDA currently is in the process of studying many of the issues addressed by the draft report and thus we are not in a position to provide substantive comments on the report at this time. However, we look forward to discussing the conclusions of the report with your staff at a later date.

Sincerely,

James L. Malone

James L. Malone
Acting

Mr. J. K. Fasick
Director
U.S. General Accounting Office
Washington, D.C. 20548

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON D. C. 20555

FEB 20 1981

Mr. J. Dexter Peach
Director
Energy and Minerals Division
United States General
  Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

This letter provides NRC staff comments on the proposed GAO report to the Congress on the implementation and impact of the Nuclear Non-Proliferation Act of 1978, which was enclosed with your February 5 letter to Chairman Ahearne.

The following are our comments on some of the more significant issues addressed in the proposed report, which directly affect the Nuclear Regulatory Commission. We have also appended comments and suggested revisions on other matters in the report, which also affect the NRC, but are less substantive in nature.

With respect to the GAO conclusion that the NRC should retain its nuclear export licensing functions, the staff notes that the discussion on p. ix characterizes the Commission position as "Three of the five Commissioners have called for the transfer of (these) functions to the Executive Branch." Since the term of one of the five Commissioners expired on June 30, 1980, we suggest that the sentence be revised to read: "In commenting on President Carter's proposed reorganization plan for the NRC on February 6, 1980, three of the then five Commissioners called for...". The opening sentence of the first full paragraph on p. 6-61 might be similarly revised.

The Commission fully shares GAO's conclusion that nuclear export procedures should be streamlined wherever possible, consistent with the non-proliferation review requirements of Title III of the NNPA. In this connection, the Commission has, as noted by GAO, implemented several improvements in the export licensing process since enactment of the NNPA and is continuously striving to identify and implement further improvements. For example, the Commission has just received Executive Branch concurrence in an NRC initiated proposal to significantly expand NRC's general licenses for export of nuclear equipment and material to NPT adherent nations. These proposals will be forwarded to the Commission shortly for final review. Through these actions the Commission supports the reliability of the U.S. in meeting its supply commitments to nations which adhere to effective non-proliferation policies.

GAO notes: Page number references to the draft report have been changed. The discussions on pages ix and xxii of the draft digest have been deleted.

In connection with the GAO recommendation to the NRC that the GESMO proceedings be resumed unless the Commission determines that it would be detrimental to the U.S. national security interests (pp. xix and 10-16), the Commission will be seeking the views of the President shortly on this matter. As you know, the position of then President Carter was an important factor in the Commission's 1977 decision to suspend the GESMO proceedings indefinitely. The views of the new Administration will be similarly important, as the Commission undertakes its reexamination of this question.

As concerns the GAO recommendation to the Congress that specific guidance and clarification be provided on (1) the extent of the Nuclear Regulatory Commission's responsibility for determining compliance with the "International Atomic Energy Agency's safeguards" criterion and (2) the types of information and assurances that should be considered in making the determination (pp xxii and 6-12 - 6-13), and NRC staff agrees that such guidance and clarification would be helpful to the Commission in exercising its statutory responsibilities. In this regard, the staff will shortly be submitting a paper to the Commission itself on this subject, recommending that such Congressional guidance be sought. Should the Commission approve, appropriate letters will be sent to the relevant Congressional committees or, alternatively, guidance would be sought in the Commission response to the Congress in the final GAO report.

Thank you for the opportunity to comment on the draft report, which, I might add, represents an insightful analysis of the implementation and impact of an enormously complex and controversial piece of legislation.

Sincerely,

William J. Dircks
Executive Director for Operations

DEPARTMENT OF STATE
Comptroller
Washington, D.C. 20520

2 MAR 1981

Mr. J. Kenneth Fasick
Director
International Division
U.S. General Accounting Office

Dear Mr. Fasick:

I am replying to your letter of February 5, 1981, which forwarded copies of the draft report: "Assessment of the Implementation and Impact of the Nuclear Non-Proliferation Act of 1978.

The enclosed comments on this report were prepared by the Assistant Secretary for the Bureau of Oceans and International Environmental and Scientific Affairs.

We appreciate having had the opportunity to review and comment on the draft report. If I may be of further assistance, I trust you will let me know.

Sincerely,

Roger B. Feldman

Roger B. Feldman

Enclosure:

As Stated.

GAO REPORT: "ASSESSMENT OF THE IMPLEMENTATION AND IMPACT OF THE NUCLEAR NON-PROLIFERATION ACT OF 1978"

The Department is pleased to respond to the request of February 5, 1981 for agency comments on the draft report.

The Department strongly supports the basic objectives of the Nuclear Non-Proliferation Act: namely, furthering international cooperation in the peaceful uses of nuclear energy while preventing further proliferation of nuclear explosives. The Department generally agrees with the draft report's finding that the overall impact of the Act may not be known for some time. However, we also agree, as noted in the report, that parts of the Act and related United States policies have had adverse impacts and that there has been a very significant lack of consensus -- internationally and in many cases within the United States -- on key questions concerning how to deal with the proliferation problem.

The report draws numerous conclusions and makes many substantive recommendations regarding both the provisions of the Act and the content of related, non-statutory policies, such as reprocessing, plutonium use and the breeder, nuclear export controls and licensing. The Department will be reviewing a number of non-proliferation matters, including issues addressed in the draft report. Substantive comment or response to the conclusions and recommendations of the draft report would, thus, not be appropriate at this time. As reviews of these matters progress, the Congress will be kept fully informed and consulted.

The Department has provided the GAO staff with a number of comments in the interest of factual and technical accuracy. We assume that these will be taken into account in preparation of the final report and that it will be modified as appropriate. A copy of the draft marked to reflect these comments has been provided to the GAO staff.

Thomas R. Pickering, Acting
Assistant Secretary
Bureau of Oceans and International
Environmental & Scientific Affairs

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